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**STATE OF CALIFORNIA**  
**DEPARTMENT OF TRANSPORTATION**

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**NOTICE TO CONTRACTORS**  
**AND**  
**SPECIAL PROVISIONS**  
**FOR CONSTRUCTION ADJACENT TO STATE HIGHWAY IN**  
**NAPA COUNTY IN NAPA AT FIRST STREET UNDERCROSSING**  
**AND AT NAPA VALLEY CORPORATE DRIVE**

**DISTRICT 04, ROUTE 29**

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**For Use in Connection with Standard Specifications Dated JULY 1999, Standard Plans Dated JULY 1999, and Labor  
Surcharge and Equipment Rental Rates.**

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**CONTRACT NO. 04-120624**

**04-Nap-29-12.0, 18.5**

**Bids Open: May 8, 2001**

**Dated: April 16, 2001**

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# IMPORTANT SPECIAL NOTICES

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- **Payment Bonds**

Attention is directed to Section 5 of the Special Provisions, regarding contract bonds. The payment bond shall be in a sum not less than one hundred percent of the total amount payable by the terms of the contract.



# TABLE OF CONTENTS

|  |    |
|--|----|
| NOTICE TO CONTRACTORS.....   | 1  |
| COPY OF ENGINEER'S ESTIMATE .....  | 3  |
| SPECIAL PROVISIONS .....   | 5  |
| SECTION 1. SPECIFICATIONS AND PLANS.....                                       | 5  |
| SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS.....                           | 5  |
| 2-1.01 GENERAL.....  | 5  |
| 2-1.02 DISABLED VETERAN BUSINESS ENTERPRISE (DVBE).....                        | 5  |
| 2-1.03 DVBE GOAL FOR THIS PROJECT .....  | 6  |
| 2-1.04 SUBMISSION OF DVBE INFORMATION .....                                    | 6  |
| 2-1.05 SMALL BUSINESS PREFERENCE.....  | 7  |
| 2-1.06 CALIFORNIA COMPANY PREFERENCE .....                                     | 8  |
| SECTION 3. AWARD AND EXECUTION OF CONTRACT.....                                | 8  |
| SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES .....  | 9  |
| SECTION 5. GENERAL .....   | 9  |
| SECTION 5-1. MISCELLANEOUS .....   | 9  |
| 5-1.01 PLANS AND WORKING DRAWINGS .....  | 9  |
| 5-1.011 EXAMINATION OF PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK ..... | 9  |
| 5-1.012 DIFFERING SITE CONDITIONS.....   | 10 |
| 5-1.015 LABORATORY .....   | 10 |
| 5-1.017 CONTRACT BONDS .....   | 10 |
| 5-1.018 EXCAVATION SAFETY PLANS .....  | 10 |
| 5-1.019 COST REDUCTION INCENTIVE.....  | 11 |
| 5-1.02 LABOR NONDISCRIMINATION .....   | 11 |
| 5-1.03 INTEREST ON PAYMENTS .....  | 11 |
| 5-1.031 FINAL PAYMENT AND CLAIMS.....  | 11 |
| 5-1.04 PUBLIC SAFETY .....   | 12 |
| 5-1.05 SURFACE MINING AND RECLAMATION ACT.....                                 | 13 |
| 5-1.06 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES.....                       | 13 |
| 5-1.07 YEAR 2000 COMPLIANCE.....   | 13 |
| 5-1.08 SUBCONTRACTOR AND DVBE RECORDS.....                                     | 13 |
| 5-1.086 PERFORMANCE OF DVBE SUBCONTRACTORS AND SUPPLIERS .....                 | 13 |
| 5-1.09 SUBCONTRACTING.....   | 14 |
| 5-1.10 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS .....                         | 14 |
| 5-1.11 CLAIMS SUBMITTAL .....  | 14 |
| 5-1.12 AREAS FOR CONTRACTOR'S USE .....  | 15 |
| 5-1.13 PAYMENTS.....   | 15 |
| 5-1.14 SOUND CONTROL REQUIREMENTS.....   | 15 |
| 5-1.15 RELATIONS WITH U.S. ARMY CORPS OF ENGINEERS.....                        | 15 |
| 5-1.16 RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME .....             | 16 |
| 5-1.17 RELATIONS WITH CALIFORNIA STATE WATER QUALITY CONTROL BOARD .....       | 16 |
| 5-1.18 ENVIRONMENTALLY SENSITIVE AREA (GENERAL).....                           | 17 |
| 5-1.19 AERIALY DEPOSITED LEAD .....  | 17 |
| SECTION 6. (BLANK).....  | 18 |
| SECTION 7. (BLANK).....  | 18 |
| SECTION 8. MATERIALS .....   | 18 |
| SECTION 8-1. MISCELLANEOUS .....   | 18 |
| 8-1.01 SUBSTITUTION OF NON-METRIC MATERIALS AND PRODUCTS .....                 | 18 |
| 8-1.02 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS .....         | 24 |
| 8-1.03 ENGINEERING FABRICS.....  | 29 |
| SECTION 8-2. CONCRETE.....   | 29 |
| 8-2.01 PORTLAND CEMENT CONCRETE.....   | 29 |
| SECTION 8-3. WELDING .....   | 39 |
| 8-3.01 WELDING ELECTRODES .....  | 39 |
| 8-3.02 WELDING QUALITY CONTROL .....   | 39 |

|  |    |
|--|----|
| SECTION 9. (BLANK).....  | 43 |
| SECTION 10. CONSTRUCTION DETAILS.....  | 43 |
| SECTION 10-1. GENERAL.....   | 43 |
| 10-1.01 ORDER OF WORK.....   | 43 |
| 10-1.02 WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN) .....    | 44 |
| STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL AND AMENDMENTS ..... | 45 |
| COST BREAK-DOWN .....  | 46 |
| SWPPP IMPLEMENTATION .....   | 49 |
| MAINTENANCE .....  | 49 |
| PAYMENT .....  | 50 |
| 10-1.03 TEMPORARY FENCE (TYPE ESA).....  | 51 |
| MEASUREMENT AND PAYMENT .....  | 52 |
| 10-1.04 TEMPORARY CREEK DIVERSION SYSTEM .....                                   | 52 |
| MATERIALS.....   | 52 |
| INSTALLATION .....   | 53 |
| PAYMENT .....  | 53 |
| 10-1.05 TEMPORARY ENTRANCE/EXITS .....   | 53 |
| MATERIALS.....   | 53 |
| MAINTENANCE .....  | 54 |
| PAYMENT .....  | 55 |
| 10-1.06 ROADWAY SWEEPING .....   | 55 |
| 10-1.07 TEMPORARY COVER .....  | 55 |
| MATERIALS.....   | 55 |
| INSTALLATION .....   | 55 |
| MEASUREMENT AND PAYMENT .....  | 56 |
| 10-1.08 TEMPORARY CONCRETE WASHOUT FACILITY .....                                | 56 |
| MATERIALS.....   | 56 |
| TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ON GRADE) .....                        | 56 |
| TEMPORARY CONCRETE WASHOUT FACILITY (TYPE BELOW GRADE).....                      | 57 |
| MAINTENANCE AND REMOVAL.....   | 57 |
| PAYMENT .....  | 57 |
| 10-1.09 PRESERVATION OF PROPERTY .....   | 57 |
| 10-1.10 DAMAGE REPAIR.....   | 57 |
| 10-1.11 RELIEF FROM MAINTENANCE AND RESPONSIBILITY.....                          | 58 |
| 10-1.12 COOPERATION .....  | 58 |
| 10-1.13 PROGRESS SCHEDULE .....  | 58 |
| 10-1.14 OBSTRUCTIONS .....   | 58 |
| 10-1.15 MOBILIZATION .....   | 58 |
| 10-1.16 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES .....                          | 58 |
| 10-1.17 CONSTRUCTION AREA SIGNS .....  | 59 |
| 10-1.18 MAINTAINING TRAFFIC.....   | 59 |
| 10-1.19 TEMPORARY CRASH CUSHION MODULE.....                                      | 61 |
| GENERAL.....   | 62 |
| MATERIALS.....   | 62 |
| INSTALLATION .....   | 62 |
| MEASUREMENT AND PAYMENT .....  | 63 |
| 10-1.20 EXISTING HIGHWAY FACILITIES .....  | 63 |
| RELOCATE ROADSIDE SIGN .....   | 63 |
| REMOVE SACKED CONCRETE SLOPE PROTECTION .....                                    | 63 |
| 10-1.21 CLEARING AND GRUBBING.....   | 63 |
| 10-1.22 EARTHWORK.....   | 63 |
| IMPORTED BORROW (SOIL COVER) .....   | 63 |
| 10-1.23 MATERIAL CONTAINING AERIALY DEPOSITED LEAD .....                         | 64 |
| LEAD COMPLIANCE PLAN .....   | 65 |
| EXCAVATION AND TRANSPORTATION PLAN .....   | 65 |
| DUST CONTROL .....   | 66 |
| MATERIAL TRANSPORTATION .....  | 66 |
| DISPOSAL .....   | 66 |

|  |    |
|--|----|
| MEASUREMENT AND PAYMENT .....                  | 66 |
| 10-1.24 CONTROLLED LOW STRENGTH MATERIAL ..... | 67 |
| 10-1.25 EROSION CONTROL (BLANKET) .....        | 67 |
| MATERIALS.....                                 | 68 |
| APPLICATION– LOCATION 1 .....                  | 69 |
| APPLICATION– LOCATION 2 .....                  | 69 |
| MEASUREMENT AND PAYMENT .....                  | 70 |
| 10-1.26 EROSION CONTROL (TYPE D).....          | 70 |
| MATERIALS.....                                 | 70 |
| APPLICATION .....                              | 71 |
| MEASUREMENT AND PAYMENT .....                  | 72 |
| 10-1.27 FIBER ROLLS .....                      | 72 |
| MATERIALS.....                                 | 72 |
| INSTALLATION .....                             | 72 |
| MEASUREMENT AND PAYMENT .....                  | 73 |
| 10-1.28 WILLOW CUTTINGS (PLANT GROUP W).....   | 73 |
| 10-1.29 WILLOW WATTLES (PLANT GROUP WA).....   | 74 |
| 10-1.30 SUBGRADE ENHANCEMENT FABRIC .....      | 74 |
| 10-1.31 CLASS 3 AGGREGATE BASE .....           | 75 |
| 10-1.32 CONCRETE STRUCTURES .....              | 76 |
| 10-1.33 ALTERNATIVE PIPE .....                 | 76 |
| SPIRAL RIB PIPE .....                          | 76 |
| 10-1.34 MISCELLANEOUS FACILITIES .....         | 77 |
| 10-1.35 SLOPE PROTECTION .....                 | 77 |
| 10-1.36 MISCELLANEOUS IRON AND STEEL.....      | 77 |
| SECTION 10-2. HIGHWAY PLANTING .....           | 77 |
| 10-2.01 GENERAL.....                           | 77 |
| PROGRESS INSPECTIONS.....                      | 77 |
| COST BREAK-DOWN .....                          | 78 |
| 10-2.02 (BLANK).....                           | 80 |
| 10-2.03 (BLANK).....                           | 80 |
| 10-2.04 HIGHWAY PLANTING .....                 | 80 |
| HIGHWAY PLANTING MATERIALS .....               | 80 |
| ROADSIDE CLEARING .....                        | 80 |
| PESTICIDES .....                               | 81 |
| PREPARING PLANTING AREAS .....                 | 81 |
| PREPARE HOLES .....                            | 81 |
| PLANTING.....                                  | 81 |
| LINER PLANTS.....                              | 82 |
| POT PLANTS (GROUP I) .....                     | 82 |
| FOLIAGE PROTECTOR .....                        | 82 |
| PLANT ESTABLISHMENT WORK.....                  | 82 |

# STANDARD PLANS LIST

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply to this contract are included as individual sheets of the project plans.

|           |   |
|-----------|---|
| A10A      | Abbreviations   |
| A10B      | Symbols   |
| A62A      | Excavation and Backfill - Miscellaneous Details   |
| A62D      | Excavation and Backfill - Concrete Pipe Culverts  |
| RSP A62DA | Excavation and Backfill - Concrete Pipe Culverts  |
| A62E      | Excavation and Backfill - Cast-In-Place Reinforced Concrete Box and Arch Culverts       |
| A62F      | Excavation and Backfill - Metal and Plastic Culverts                                    |
| D74C      | Drainage Inlet Details  |
| D79       | Precast Reinforced Concrete Pipe - Direct Design Method                                 |
| D88       | Construction Loads On Culverts  |
| RSP D89   | Pipe Headwalls  |
| D90       | Pipe Culvert Headwalls, Endwalls and Wingwalls -Types A, B and C                        |
| D93A      | Pipe Riser Connections  |
| D97H      | Reinforced Concrete Pipe or Non-Reinforced Concrete Pipe - Standard and Positive Joints |
| H1        | Planting and Irrigation - Abbreviations   |
| H2        | Planting and Irrigation - Symbols   |
| H3        | Planting and Irrigation Details   |
| H4        | Planting and Irrigation Details   |
| T1A       | Temporary Crash Cushion, Sand Filled (Unidirectional)                                   |
| T1B       | Temporary Crash Cushion, Sand Filled (Bidirectional)                                    |
| RSP T2    | Temporary Crash Cushion, Sand Filled (Shoulder Installations)                           |
| T3        | Temporary Railing (Type K)  |
| T10       | Traffic Control System for Lane Closure On Freeways and Expressways                     |
| RS1       | Roadside Signs, Typical Installation Details No. 1                                      |
| RS2       | Roadside Signs - Wood Post, Typical Installation Details No. 2                          |



**DEPARTMENT OF TRANSPORTATION**

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**NOTICE TO CONTRACTORS**

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**CONTRACT NO. 04-120624**

**04-Nap-29-12.0, 18.5**

Sealed proposals for the work shown on the plans entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION  
ADJACENT TO STATE HIGHWAY IN NAPA COUNTY IN NAPA AT FIRST STREET  
UNDERCROSSING AND AT NAPA VALLEY CORPORATE DRIVE**

will be received at the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, CA 95814, until 2 o'clock p.m. on May 8, 2001, at which time they will be publicly opened and read in Room 0100 at the same address.

Proposal forms for this work are included in a separate book entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR  
CONSTRUCTION ADJACENT TO STATE HIGHWAY IN NAPA COUNTY IN NAPA AT FIRST STREET  
UNDERCROSSING AND AT NAPA VALLEY CORPORATE DRIVE**

General work description: Install a drainage system and wetland mitigation.

This project has a goal of 3 percent disabled veteran business enterprise (DVBE) participation.

No prebid meeting is scheduled for this project.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or one of the following Class C licenses: C-12.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in conformance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small Business Certification and Resources at the time of bid opening in conformance with the provisions in Section 2-1.05, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting a "Small Business" preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in conformance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, MS #26, Transportation Building, 1120 N Street, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Irvine, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are not available.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California Department of Industrial Relations' Internet Web Site at: <http://www.dir.ca.gov>. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated April 16, 2001

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**COPY OF ENGINEER'S ESTIMATE**  
**(NOT TO BE USED FOR BIDDING PURPOSES)**  
**04-120624**

| Item      | Item Code | Item   | Unit of Measure | Estimated Quantity |
|-----------|-----------|--|-----------------|--------------------|
| 1         | 074019    | PREPARE STORM WATER POLLUTION PREVENTION PLAN        | LS              | LUMP SUM           |
| 2         | 074020    | WATER POLLUTION CONTROL                              | LS              | LUMP SUM           |
| 3         | 021111    | TEMPORARY CREEK DIVERSION SYSTEM                     | LS              | LUMP SUM           |
| 4         | 021112    | TEMPORARY COVER                                      | LS              | LUMP SUM           |
| 5         | 021113    | TEMPORARY CONCRETE WASHOUT FACILITY                  | LS              | LUMP SUM           |
| 6         | 021114    | TEMPORARY FENCE (TYPE ESA)                           | M               | 130                |
| 7         | 021115    | TEMPORARY ENTRANCE/EXIT                              | LS              | LUMP SUM           |
| 8<br>(S)  | 120090    | CONSTRUCTION AREA SIGNS                              | LS              | LUMP SUM           |
| 9<br>(S)  | 120100    | TRAFFIC CONTROL SYSTEM                               | LS              | LUMP SUM           |
| 10<br>(S) | 152390    | RELOCATE ROADSIDE SIGN                               | EA              | 2                  |
| 11        | 021116    | REMOVE SACKED CONCRETE SLOPE PROTECTION              | M3              | 12                 |
| 12        | 160101    | CLEARING AND GRUBBING                                | LS              | LUMP SUM           |
| 13        | 190101    | ROADWAY EXCAVATION                                   | M3              | 300                |
| 14        | 190110    | LEAD COMPLIANCE PLAN                                 | LS              | LUMP SUM           |
| 15        | 190103    | ROADWAY EXCAVATION (TYPE Y) (AERIALY DEPOSITED LEAD) | M3              | 630                |
| 16        | 021117    | IMPORTED BORROW (SOIL COVER)                         | M3              | 550                |
| 17        | 198200    | SUBGRADE ENHANCEMENT FABRIC                          | M2              | 50                 |
| 18<br>(S) | 200001    | HIGHWAY PLANTING                                     | LS              | LUMP SUM           |
| 19<br>(S) | 203001    | EROSION CONTROL (BLANKET)                            | M2              | 1900               |
| 20<br>(S) | 203003    | STRAW (EROSION CONTROL)                              | TONN            | 0.5                |

| Item      | Item Code | Item                                     | Unit of Measure | Estimated Quantity |
|-----------|-----------|--|-----------------|--------------------|
| 21<br>(S) | 203014    | FIBER (EROSION CONTROL)                  | KG              | 90                 |
| 22<br>(S) | 203021    | FIBER ROLLS                              | M               | 470                |
| 23<br>(S) | 203024    | COMPOST (EROSION CONTROL)                | KG              | 250                |
| 24<br>(S) | 203045    | PURE LIVE SEED (EROSION CONTROL)         | KG              | 10                 |
| 25<br>(S) | 203061    | STABILIZING EMULSION (EROSION CONTROL)   | KG              | 20                 |
| 26        | 204017    | PLANT (GROUP W)                          | EA              | 171                |
| 27        | 021154    | PLANT (GROUP Wa)                         | M               | 6                  |
| 28<br>(S) | 204099    | PLANT ESTABLISHMENT WORK                 | LS              | LUMP SUM           |
| 29        | 260301    | CLASS 3 AGGREGATE BASE                   | M3              | 30                 |
| 30<br>(F) | 510126    | CLASS 2 CONCRETE (MINOR STRUCTURE)       | M3              | 4                  |
| 31<br>(F) | 510138    | CLASS 2 CONCRETE (WINGWALLS)             | M3              | 4                  |
| 32<br>(F) | 510502    | MINOR CONCRETE (MINOR STRUCTURE)         | M3              | 3.4                |
| 33        | 620930    | 1050 MM ALTERNATIVE PIPE CULVERT         | M               | 17                 |
| 34        | 707471    | 900 MM PRECAST CONCRETE PIPE RISER       | M               | 8                  |
| 35        | 721009    | ROCK SLOPE PROTECTION (FACING, METHOD B) | M3              | 30                 |
| 36        | 727901    | MINOR CONCRETE (DITCH LINING)            | M3              | 0.5                |
| 37        | 729010    | ROCK SLOPE PROTECTION FABRIC             | M2              | 50                 |
| 38<br>(F) | 750001    | MISCELLANEOUS IRON AND STEEL             | KG              | 400                |
| 39        | 999990    | MOBILIZATION                             | LS              | LUMP SUM           |

**STATE OF CALIFORNIA**  
**DEPARTMENT OF TRANSPORTATION**

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**SPECIAL PROVISIONS**

**Annexed to Contract No. 04-120624**

**SECTION 1. SPECIFICATIONS AND PLANS**

The work embraced herein shall conform to the provisions in the Standard Specifications dated July 1999, and the Standard Plans dated July 1999, of the Department of Transportation insofar as the same may apply, and these special provisions.

Amendments to the Standard Specifications set forth in these special provisions shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.04, "Coordination and Interpretation of Plans, Standard Specifications and Special Provisions," of the Standard Specifications. Whenever either the term "Standard Specifications is amended" or the term "Standard Specifications are amended" is used in the special provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. In case of conflict between such amendments and the Standard Specifications, the amendments shall take precedence over and be used in lieu of the conflicting portions.

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and shall be used in lieu of the conflicting portions.

**SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS**

**2-1.01 GENERAL**

The bidder's attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation of the proposal form and the submission of the bid.

In addition to the subcontractors required to be listed in conformance with Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications, each proposal shall have listed therein the name and address of each DVBE subcontractor to be used for credit in meeting the goal, and to whom the bidder proposes to directly subcontract portions of the work. The list of subcontractors shall also set forth the portion of work that will be performed by each subcontractor listed. A sheet for listing the subcontractors is included in the Proposal.

The Bidder's Bond form mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications will be found following the signature page of the Proposal.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

Submit request for substitution of an "or equal" item, and the data substantiating the request to the Department of Transportation, Division Of Construction - Duty Senior, Mail Station: 3 - B, 111 Grand Avenue / P. O. Box 23660, Oakland, Ca 94623-0660, so that the request is received by the Department by close of business on the fourth day, not including Saturdays, Sundays and legal holidays, following bid opening.

**2-1.02 DISABLED VETERAN BUSINESS ENTERPRISE (DVBE)**

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veterans Business Enterprise (DVBE) in contracts.

It is the policy of the Department that Disabled Veteran Business Enterprise (DVBE) shall have the maximum opportunity to participate in the performance of contracts financed solely with state funds. The Contractor shall ensure that DVBEs have the maximum opportunity to participate in the performance of this contract and shall take all necessary and reasonable steps for this assurance. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts. Failure to carry out the requirements of this paragraph shall constitute a breach of contract and may result in termination of this contract or other remedy the Department may deem appropriate.

Bidder's attention is directed to the following:

- A. "Disabled Veteran Business Enterprise" (DVBE) means a business concern certified as a DVBE by the Office of Small Business Certification and Resources, Department of General Services.
- B. A DVBE may participate as a prime contractor, subcontractor, joint venture partner with a prime or subcontractor, or vendor of material or supplies.
- C. Credit for DVBE prime contractors will be 100 percent.
- D. A DVBE joint venture partner must be responsible for specific contract items of work, or portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The DVBE joint venture partner must share in the ownership, control, management responsibilities, risks and profits of the joint venture. The DVBE joint venturer must submit the joint venture agreement with the Caltrans Bidder DVBE Information form required in Section 2-1.04, "Submission of DVBE Information," elsewhere in these special provisions.
- E. A DVBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work.
- F. Credit for DVBE vendors of materials or supplies is limited to 60 percent of the amount to be paid to the vendor for the material unless the vendor manufactures or substantially alters the goods.
- G. Credit for trucking by DVBEs will be as follows:
  - 1. One hundred percent of the amount to be paid when a DVBE trucker will perform the trucking with his/her own trucks, tractors and employees.
  - 2. Twenty percent of the amount to be paid to DVBE trucking brokers who do not have a "certified roster."
  - 3. One hundred percent of the amount to be paid to DVBE trucking brokers who have signed agreements that all trucking will be performed by DVBE truckers if credit is toward the DVBE goal, a "certified roster" showing that all trucks are owned by DVBEs, and a signed statement on the "certified roster" that indicates that 100 percent of revenue paid by the broker will be paid to the DVBEs listed on the "certified roster."
  - 4. Twenty percent of the amount to be paid to trucking brokers who are not a DVBE but who have signed agreements with DVBE truckers assuring that at least 20 percent of the trucking will be performed by DVBE truckers if credit is toward the DVBE goal, a "certified roster" showing that at least 20 percent of the number of trucks are owned by DVBE truckers, and a signed statement on the "certified roster" that indicates that at least 20 percent of the revenue paid by the broker will be paid to the DVBEs listed on the "certified roster."

The "certified roster" referred to herein shall conform to the requirements in Section 2-1.04, "Submission Of DVBE Information," elsewhere in these special provisions.

- H. DVBEs and DVBE joint venture partners must be certified DVBEs as determined by the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, on the date bids for the project are opened before credit may be allowed toward the DVBE goal. It is the Contractor's responsibility to verify that DVBEs are certified.
- I. Noncompliance by the Contractor with these requirements constitutes a breach of this contract and may result in termination of the contract or other appropriate remedy for a breach of this contract.

### **2-1.03 DVBE GOAL FOR THIS PROJECT**

The Department has established the following goal for Disabled Veteran Business Enterprise (DVBE) participation for this project:

Disabled Veteran Business Enterprise (DVBE): 3 percent.

It is the bidder's responsibility to make a sufficient portion of the work available to subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DVBE subcontractors and suppliers, so as to assure meeting the goal for DVBE participation.

The Office of Small Business Certification and Resources, Department of General Services, may be contacted at (916) 322-5060 or visit their internet web site at <http://www.osmb.dgs.ca.gov/> for program information and certification status. The Department's Business Enterprise Program may also be contacted at (916) 227-9599 or the internet web site at <http://www.dot.ca.gov/hq/bep/>.

### **2-1.04 SUBMISSION OF DVBE INFORMATION**

The required DVBE information shall be submitted on the "CALTRANS BIDDER - DVBE INFORMATION" form included in the Proposal. If this information is not submitted with the bid, the DVBE information forms shall be removed from the documents prior to submitting the bid.

It is the bidder's responsibility to make enough work available to DVBEs and to select those portions of the work or material needs consistent with the available DVBEs to meet the goal for DVBE participation or to provide information to establish that, prior to bidding, the bidder made adequate good faith efforts to do so.

If the DVBE information is not submitted with the bid, the apparent successful bidder (low bidder), the second low bidder and the third low bidder shall submit the DVBE information to the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, California 95814 so the information is received by the Department no later than 4:00 p.m. on the fourth day, not including Saturdays, Sundays and legal holidays, following bid opening. DVBE information sent by U.S. Postal Service certified mail with return receipt and certificate of mailing and mailed on or before the third day, not including Saturdays, Sundays and legal holidays, following bid opening will be accepted even if it is received after the fourth day following bid opening. Failure to submit the required DVBE information by the time specified will be grounds for finding the bid or proposal nonresponsive. Other bidders need not submit DVBE information unless requested to do so by the Department.

The bidder's DVBE information shall establish that good faith efforts to meet the DVBE goal have been made. To establish good faith efforts, the bidder shall demonstrate that the goal will be met or that, prior to bidding, adequate good faith efforts to meet the goal were made.

Bidders are cautioned that even though their submittal indicates they will meet the stated DVBE goal, their submittal should also include their adequate good faith efforts information along with their DVBE goal information to protect their eligibility for award of the contract in the event the Department, in its review, finds that the goal has not been met.

The bidder's DVBE information shall include the names of DVBE firms that will participate, with a complete description of work or supplies to be provided by each, the dollar value of each DVBE transaction, and a written confirmation from the DVBE that it is participating in the contract. A copy of the DVBE's quote will serve as written confirmation that the DVBE is participating in the contract. When 100 percent of a contract item of work is not to be performed or furnished by a DVBE, a description of the exact portion of that work to be performed or furnished by that DVBE shall be included in the DVBE information, including the planned location of that work. The work that a DVBE prime contractor has committed to performing with its own forces as well as the work that it has committed to be performed by DVBE subcontractors, suppliers and trucking companies will count toward the goal.

If credit for trucking by a DVBE trucking broker is shown on the bidder's information as 100 percent of the revenue to be paid by the broker is to be paid to DVBE truckers, a "certified roster" of the broker's trucks to be used must be included. The "certified roster" must indicate that all the trucks are owned by certified DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification numbers. The roster must indicate that all revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

If credit for trucking by a trucking broker who is not a DVBE is shown in the bidder's information, a "certified roster" of the broker's trucks to be used must be included. The "certified roster" must indicate that at least 20 percent of the broker's trucks are owned by certified DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification number. The roster must indicate that at least 20 percent of the revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

A bidder shall be deemed to have made good faith efforts upon submittal, within time limits specified by the Department, of documentary evidence that all of the following actions were taken:

- A. Contact was made with the Office of Small Business Certification and Resources (OSBCR), Department of General Services or their web site at <http://www.osmb.dgs.ca.gov/> to identify Disabled Veteran Business Enterprises.
- B. Advertising was published in trade media and media focusing on Disabled Veteran Business Enterprises, unless time limits imposed by the Department do not permit that advertising.
- C. Invitations to bid were submitted to potential Disabled Veteran Business Enterprise contractors.
- D. Available Disabled Veteran Business Enterprises were considered.

## **2-1.05 SMALL BUSINESS PREFERENCE**

Attention is directed to "Award and Execution of Contract" of these special provisions.

Attention is also directed to the Small Business Procurement and Contract Act, Government Code Section 14835, et seq and Title 2, California Code of Regulations, Section 1896, et seq.

Bidders who wish to be classified as a Small Business under the provisions of those laws and regulations, shall be certified as Small Business by the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814.

To request Small Business Preference, bidders shall fill out and sign the Request for Small Business Preference form in the Proposal and shall attach a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form. The bidder's signature on the Request for Small Business Preference certifies, under penalty of perjury, that the bidder is certified as Small Business at the time of bid opening and further certifies, under penalty of perjury, that under the following conditions, at least 50 percent of the subcontractors to be utilized on the project are either

certified Small Business or have applied for Small Business certification by bid opening date and are subsequently granted Small Business certification.

The conditions requiring the aforementioned 50 percent level of subcontracting by Small Business subcontractors apply if:

- A. The lowest responsible bid for the project exceeds \$100,000; and
- B. The project work to be performed requires a Class A or a Class B contractor's license; and
- C. Two or more subcontractors will be used.

If the above conditions apply and Small Business Preference is granted in the award of the contract, the 50 percent Small Business subcontractor utilization level shall be maintained throughout the life of the contract.

## **2-1.06 CALIFORNIA COMPANY PREFERENCE**

Attention is directed to "Award and Execution of Contract" of these special provisions.

In conformance with the requirements of Section 6107 of the Public Contract Code, a "California company" will be granted a reciprocal preference for bid comparison purposes as against a nonresident contractor from any state that gives or requires a preference to be given contractors from that state on its public entity construction contracts.

A "California company" means a sole proprietorship, partnership, joint venture, corporation, or other business entity that was a licensed California contractor on the date when bids for the public contract were opened and meets one of the following:

- A. Has its principal place of business in California.
- B. Has its principal place of business in a state in which there is no local contractor preference on construction contracts.
- C. Has its principal place of business in a state in which there is a local contractor construction preference and the contractor has paid not less than \$5000 in sales or use taxes to California for construction related activity for each of the five years immediately preceding the submission of the bid.

To carry out the "California company" reciprocal preference requirements of Section 6107 of the Public Contract Code, all bidders shall fill out and sign the California Company Preference form in the Proposal. The bidder's signature on the California Company Preference form certifies, under penalty of perjury, that the bidder is or is not a "California company" and if not, the amount of the preference applied by the state of the nonresident Contractor.

A nonresident Contractor shall disclose any and all bid preferences provided to the nonresident Contractor by the state or country in which the nonresident Contractor has its principal place of business.

Proposals without the California Company Preference form filled out and signed may be rejected.

## **SECTION 3. AWARD AND EXECUTION OF CONTRACT**

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and who has met the goal for DVBE participation or has demonstrated, to the satisfaction of the Department, adequate good faith efforts to do so. Meeting the goal for DVBE participation or demonstrating, to the satisfaction of the Department, adequate good faith efforts to do so is a condition for being eligible for award of contract.

A "Payee Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract and contract bonds. For the purposes of the form, payee shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Payee Data Record" form to the Department as provided herein will result in the retention of 20 percent of payments due the contractor and penalties of up to \$20,000. This retention of payments for failure to complete the "Payee Data Record" form is in addition to any other retention of payments due the Contractor.

Attention is also directed to "Small Business Preference" of these special provisions. Any bidder who is certified as a Small Business by the Department of General Services, Office of Small Business Certification and Resources will be allowed a preference in the award of this contract, if it be awarded, under the following conditions:

- A. The apparent low bidder is not certified as a Small Business, or has not filled out and signed the Request for Small Business Preference included with the bid documents and attached a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form; and



- B. The bidder filled out and signed the Request for Small Business Preference form included with the bid documents and attached a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form.

The small business preference will be a reduction in the bid submitted by the small business contractor, for bid comparison purposes, by an amount equal to 5 percent of the amount bid by the apparent low bidder, the amount not to exceed \$50,000. If this reduction results in the small business contractor becoming the low bidder, then the contract will be awarded to the small business contractor on the basis of the actual bid of the small business contractor notwithstanding the reduced bid price used for bid comparison purposes.

Attention is also directed to "California Company Preference" of these special provisions.

The amount of the California company reciprocal preference shall be equal to the amount of the preference applied by the state of the nonresident contractor with the lowest responsive bid, except where the "California company" is eligible for a California Small Business Preference, in which case the preference applied shall be the greater of the two, but not both.

If the bidder submitting the lowest responsive bid is not a "California company" and with the benefit of the reciprocal preference, a "California company's" responsive bid is equal to or less than the original lowest responsive bid, the "California company" will be awarded the contract at its submitted bid price except as provided below.

Small business bidders shall have precedence over nonsmall business bidders in that the application of the "California company" preference for which nonsmall business bidders may be eligible shall not result in the denial of the award to a small business bidder.

#### **SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES**

Attention is directed to the provisions in Sections 8-1.03, "Beginning of Work," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," and 20-4.08, "Plant Establishment Work," of the Standard Specifications and these special provisions.

The Contractor shall begin work within 15 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

The work (except plant establishment work) shall be diligently prosecuted to completion before the expiration of **70 WORKING DAYS** beginning on the fifteenth calendar day after approval of the contract.

The Contractor shall pay to the State of California the sum of \$250 per day, for each and every calendar day's delay in finishing the work (except plant establishment work) in excess of the number of working days prescribed above.

The Contractor shall diligently prosecute all work (including plant establishment) to completion before the expiration of **200 WORKING DAYS** beginning on the fifteenth calendar day after approval of the contract.

The Contractor shall pay to the State of California the sum of \$250 per day, for each and every calendar day's delay in completing the work in excess of the number of working days prescribed above.

In no case will liquidated damages of more than \$250 per day be assessed.

#### **SECTION 5. GENERAL**

##### **SECTION 5-1. MISCELLANEOUS**

###### **5-1.01 PLANS AND WORKING DRAWINGS**

When the specifications require working drawings to be submitted to the Division of Structure Design, the drawings shall be submitted to: Division of Structure Design, Documents Unit, Mail Station 9, 1801 30th Street, Sacramento, CA 95816, Telephone 916 227-8252.

###### **5-1.011 EXAMINATION OF PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK**

The second paragraph of Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications is amended to read:

- Where the Department has made investigations of site conditions, including subsurface conditions in areas where work is to be performed under the contract, or in other areas, some of which may constitute possible local material sources, bidders or Contractors may, upon written request, inspect the records of the Department as to those investigations subject to and upon the conditions hereinafter set forth.

Attention is directed to "Differing Site Conditions" of these special provisions regarding physical conditions at the site which may differ from those indicated in "Materials Information," log of test borings or other geotechnical information obtained by the Department's investigation of site conditions.

### **5-1.012 DIFFERING SITE CONDITIONS**

Attention is directed to Section 5-1.116, "Differing Site Conditions," of the Standard Specifications.

During the progress of the work, if subsurface or latent conditions are encountered at the site differing materially from those indicated in the "Materials Information," log of test borings, other geotechnical data obtained by the Department's investigation of subsurface conditions, or an examination of the conditions above ground at the site, the party discovering those conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

The Contractor will be allowed 15 days from the notification of the Engineer's determination of whether or not an adjustment of the contract is warranted, in which to file a notice of potential claim in conformance with the provisions of Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications and as specified herein; otherwise the decision of the Engineer shall be deemed to have been accepted by the Contractor as correct. The notice of potential claim shall set forth in what respects the Contractor's position differs from the Engineer's determination and provide any additional information obtained by the Contractor, including but not limited to additional geotechnical data. The notice of potential claim shall be accompanied by the Contractor's certification that the following were made in preparation of the bid: a review of the contract, a review of the "Materials Information," a review of the log of test borings and other records of geotechnical data to the extent they were made available to bidders prior to the opening of bids, and an examination of the conditions above ground at the site. Supplementary information, obtained by the Contractor subsequent to the filing of the notice of potential claim, shall be submitted to the Engineer in an expeditious manner.

### **5-1.015 LABORATORY**

When a reference is made in the specifications to the "Laboratory," the reference shall mean the Division of Materials Engineering and Testing Services and the Division of Structural Foundations of the Department of Transportation, or established laboratories of the various Districts of the Department, or other laboratories authorized by the Department to test materials and work involved in the contract. When a reference is made in the specifications to the "Transportation Laboratory," the reference shall mean the Division of Materials Engineering and Testing Services and the Division of Structural Foundations, located at 5900 Folsom Boulevard, Sacramento, CA 95819, Telephone (916) 227-7000.

### **5-1.017 CONTRACT BONDS**

Attention is directed to Section 3-1.02, "Contract Bonds," of the Standard Specifications and these special provisions.

The payment bond shall be in a sum not less than one hundred percent of the total amount payable by the terms of the contract.

### **5-1.018 EXCAVATION SAFETY PLANS**

Section 5-1.02A, "Trench Excavation Safety Plans," of the Standard Specifications is amended to read:

#### **5-1.02A Excavation Safety Plans**

- The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. For all excavations 1.5 m or more in depth, the Contractor shall submit to the Engineer a detailed plan showing the design and details of the protective systems to be provided for worker protection from the hazard of caving ground during excavation. The detailed plan shall include any tabulated data and any design calculations used in the preparation of the plan. Excavation shall not begin until the detailed plan has been reviewed and approved by the Engineer.
- Detailed plans of protective systems for which the Construction Safety Orders require design by a registered professional engineer shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and shall include the soil classification, soil properties, soil design calculations that demonstrate adequate stability of the protective system, and any other design calculations used in the preparation of the plan.
- No plan shall allow the use of a protective system less effective than that required by the Construction Safety Orders.
- If the detailed plan includes designs of protective systems developed only from the allowable configurations and slopes, or Appendices, contained in the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation. If the detailed plan includes designs of protective systems developed from tabulated data, or designs for which design by a registered professional engineer is required, the plan shall be submitted at least 3 weeks before the Contractor intends to begin excavation.
- Attention is directed to Section 7-1.01E, "Trench Safety."

The third paragraph of Section 19-1.02, "Preservation of Property," of the Standard Specifications is amended to read:

- In addition to the provisions in Sections 5-1.02, "Plans and Working Drawings," and 5-1.02A, "Excavation Safety Plans," detailed plans of the protective systems for excavations on or affecting railroad property will be reviewed for adequacy of protection provided for railroad facilities, property, and traffic. These plans shall be submitted at least 9 weeks before the Contractor intends to begin excavation requiring the protective systems. Approval by the Engineer of the detailed plans for the protective systems will be contingent upon the plans being satisfactory to the railroad company involved.

#### **5-1.019 COST REDUCTION INCENTIVE**

Attention is directed to Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications.

Prior to preparing a cost reduction proposal, the Contractor shall request a meeting with the Engineer to discuss the proposal in concept and to determine the merit of the cost reduction proposal. Items of discussion will also include permit issues, impact on other projects, impact on the project schedule, peer reviews, and review times required by the Department and other agencies.

#### **5-1.02 LABOR NONDISCRIMINATION**

Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

#### **NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM**

##### **(GOV. CODE, SECTION 12990)**

Your attention is called to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of \$5000 or more.

#### **5-1.03 INTEREST ON PAYMENTS**

Interest shall be payable on progress payments, payments after acceptance, final payments, extra work payments, and claim payments as follows:

- A. Unpaid progress payments, payment after acceptance, and final payments shall begin to accrue interest 30 days after the Engineer prepares the payment estimate.
- B. Unpaid extra work bills shall begin to accrue interest 30 days after preparation of the first pay estimate following receipt of a properly submitted and undisputed extra work bill. To be properly submitted, the bill must be submitted within 7 days of the performance of the extra work and in conformance with the provisions in Section 9-1.03C, "Records," and Section 9-1.06, "Partial Payments," of the Standard Specifications. An undisputed extra work bill not submitted within 7 days of performance of the extra work will begin to accrue interest 30 days after the preparation of the second pay estimate following submittal of the bill.
- C. The rate of interest payable for unpaid progress payments, payments after acceptance, final payments, and extra work payments shall be 10 percent per annum.
- D. The rate of interest payable on a claim, protest or dispute ultimately allowed under this contract shall be 6 percent per annum. Interest shall begin to accrue 61 days after the Contractor submits to the Engineer information in sufficient detail to enable the Engineer to ascertain the basis and amount of said claim, protest or dispute.

The rate of interest payable on any award in arbitration shall be 6 percent per annum if allowed under the provisions of Civil Code Section 3289.

#### **5-1.031 FINAL PAYMENT AND CLAIMS**

Attention is directed to Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications.

The District that administers the contract shall submit a claim position letter to the Contractor within 135 days after acceptance of the contract. After receipt of the claim position letter from the District, or 135 days after acceptance of the contract, whichever occurs first, the Contractor may request a meeting with the person or board designated by the District Director to review claims that remain in dispute. If the Contractor requests a meeting, the review person or board shall meet with the Contractor within 45 days after the request is received.

#### 5-1.04 PUBLIC SAFETY

The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these special provisions.

The Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle or storage area when the following conditions exist:

- A. Excavations.—The near edge of the excavation is 3.6 m or less from the edge of the lane, except:
  - 1. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
  - 2. Excavations less than 0.3-m deep.
  - 3. Trenches less than 0.3-m wide for irrigation pipe or electrical conduit, or excavations less than 0.3-m in diameter.
  - 4. Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
  - 5. Excavations in side slopes, where the slope is steeper than 1:4 (vertical:horizontal).
  - 6. Excavations protected by existing barrier or railing.
- B. Temporarily Unprotected Permanent Obstacles.—The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- C. Storage Areas.—Material or equipment is stored within 3.6 m of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these special provisions.

The approach end of temporary railing (Type K), installed in conformance with the provisions in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications, shall be offset a minimum of 4.6 m from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than 0.3-m transversely to 3 m longitudinally with respect to the edge of the traffic lane. If the 4.6-m minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, "Temporary Railing (Type K)," of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 1999 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

Temporary crash cushion modules shall conform to the provisions in "Temporary Crash Cushion Module" of these special provisions.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these special provisions:

| Approach Speed of Public Traffic (Posted Limit)<br>(Kilometers Per Hour) | Work Areas   |
|--|--|
| Over 72 (45 Miles Per Hour)  | Within 1.8 m of a traffic lane but not on a traffic lane |
| 56 to 72 (35 to 45 Miles Per Hour)                                       | Within 0.9-m of a traffic lane but not on a traffic lane |

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 3 m without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the provisions in this section "Public Safety," including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

#### **5-1.05 SURFACE MINING AND RECLAMATION ACT**

Attention is directed to the Surface Mining and Reclamation Act of 1975, commencing in Public Resources Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations, and to California Public Contract Code Section 10295.5.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with California Public Contract Code Section 10295.5.

The requirements of this section shall apply to materials furnished for the project, except for acquisition of materials in conformance with the provisions in Section 4-1.05, "Use of Materials Found on the Work," of the Standard Specifications.

#### **5-1.06 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES**

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

#### **5-1.07 YEAR 2000 COMPLIANCE**

This contract is subject to Year 2000 Compliance for automated devices in the State of California.

Year 2000 compliance for automated devices in the State of California is achieved when embedded functions have or create no logical or mathematical inconsistencies when dealing with dates prior to and beyond 1999. The year 2000 is recognized and processed as a leap year. The product shall operate accurately in the manner in which the product was intended for date operation without requiring manual intervention.

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all automated devices furnished for the project.

#### **5-1.08 SUBCONTRACTOR AND DVBE RECORDS**

The Contractor shall maintain records of all subcontracts entered into with certified DVBE subcontractors and records of materials purchased from certified DVBE suppliers. The records shall show the name and business address of each DVBE subcontractor or vendor and the total dollar amount actually paid each DVBE subcontractor or vendor.

Upon completion of the contract, a summary of these records shall be prepared on Form CEM-2402 (S) and certified correct by the Contractor or the Contractor's authorized representative, and shall be furnished to the Engineer.

#### **5-1.086 PERFORMANCE OF DVBE SUBCONTRACTORS AND SUPPLIERS**

The DVBEs listed by the Contractor in response to the provisions in Section 2-1.04, "Submission of DVBE Information," and Section 3, "Award and Execution of Contract," of these special provisions, which are determined by the Department to be certified DVBEs, shall perform the work and supply the materials for which they are listed, unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

Authorization to utilize other forces or sources of materials may be requested for the following reasons:

- A. The listed DVBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when the written contract, based upon the general terms, conditions, plans and specifications for the project, or on the terms of the subcontractor's or supplier's written bid, is presented by the Contractor.
- B. The listed DVBE becomes bankrupt or insolvent.
- C. The listed DVBE fails or refuses to perform the subcontract or furnish the listed materials.

- D. The Contractor stipulated that a bond was a condition of executing a subcontract and the listed DVBE subcontractor fails or refuses to meet the bond requirements of the Contractor.
- E. The work performed by the listed subcontractor is substantially unsatisfactory and is not in substantial conformance with the plans and specifications or the subcontractor is substantially delaying or disrupting the progress of the work.
- F. The listed DVBE subcontractor is not licensed pursuant to the Contractor's License Law.
- G. It would be in the best interest of the State.

The Contractor shall not be entitled to payment for the work or material unless it is performed or supplied by the listed DVBE or by other forces (including those of the Contractor) pursuant to prior written authorization of the Engineer.

#### **5-1.09 SUBCONTRACTING**

Attention is directed to the provisions in Section 8-1.01, "Subcontracting," of the Standard Specifications, Section 2, "Proposal Requirements and Conditions," Section 2-1.04, "Submission of DVBE Information," and Section 3, "Award and Execution of Contract," of these special provisions and these special provisions.

Pursuant to the provisions in Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at:

<http://www.dir.ca.gov/DLSE/Debar.html>.

The DVBE information furnished under Section 3-1.01A, "DVBE Information," of these special provisions is in addition to the subcontractor information required to be furnished in Section 8-1.01, "Subcontracting," and Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications.

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veteran Business Enterprise (DVBE) participation in highway contracts that are State funded. As a part of this requirement:

- A. No substitution of a DVBE subcontractor shall be made at any time without the written consent of the Department, and
- B. If a DVBE subcontractor is unable to perform successfully and is to be replaced, the Contractor shall make good faith efforts to replace the original DVBE subcontractor with another DVBE subcontractor.

The provisions in Section 2-1.02, "Disabled Veteran Business Enterprise (DVBE)," of these special provisions that DVBEs shall be certified on the date bids are opened does not apply to DVBE substitutions after award of the contract.

#### **5-1.10 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS**

Attention is directed to the provisions in Sections 10262 and 10262.5 of the Public Contract Code and Section 7108.5 of the Business and Professions Code concerning prompt payment to subcontractors.

#### **5-1.11 CLAIMS SUBMITTAL**

Claims submittal may be made on work completed, except for plant establishment work, upon receiving relief from maintenance and responsibility for the completed work in lieu of acceptance by the Director as specified in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. Claims submitted upon granting of relief from maintenance and responsibility will be processed in conformance with the provisions in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications and these special provisions.

Upon the request of the Contractor, relief from maintenance and responsibility for work completed in conformance with the requirements of the contract and to the satisfaction of the Engineer may be granted in conformance with the provisions in Section 7-1.15, "Relief From Maintenance and Responsibility," of the Standard Specifications. Within 90 days of granting relief from maintenance and responsibility, the Engineer will issue to the Contractor, in writing, a final progress pay estimate showing the completed items of work. Within 30 days after receiving the final progress pay estimate, the Contractor may submit to the Engineer a written statement of the claims arising under the contract exclusive of plant establishment work. No claim arising from work for which relief of maintenance and responsibility were granted will be considered unless it was included in the written statement of claims.

The proposed final estimate for the contract will be submitted to the Contractor after acceptance of the work, including plant establishment. After submittal of the proposed final estimate, no claim will be considered except for those arising from plant establishment work or additional work ordered by the Engineer during the plant establishment period of the contract.

The process for resolution of the contract claims, including plant establishment work, by arbitration shall not begin until acceptance of the work by the Engineer and shall be in conformance with the provisions in Section 9-1.10, "Arbitration," of the Standard Specifications.

#### **5-1.12 AREAS FOR CONTRACTOR'S USE**

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The highway right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the Engineer, subject to the prior demands of State maintenance forces and to other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for damage to or loss of materials or equipment located within such areas.

The Contractor shall obtain encroachment permits prior to occupying State-owned parcels outside the contract limits. The required encroachment permits may be obtained from the Department of Transportation, Permit Engineer, (510) 286-6462.

Residence trailers will not be allowed within the highway right of way, except that one trailer will be allowed for yard security purposes.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other State-owned property which the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

#### **5-1.13 PAYMENTS**

Attention is directed to Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of the contract item of work which will be recognized for progress payment purposes:

- A. Clearing and Grubbing      \$5,000

After acceptance of the contract pursuant to the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the first estimate made after acceptance of the contract.

No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.

#### **5-1.14 SOUND CONTROL REQUIREMENTS**

Sound control shall conform to the provisions in Section 7-1.01I, "Sound Control Requirements," of the Standard Specifications and these special provisions.

The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dbA at a distance of 15 m. This requirement shall not relieve the Contractor from responsibility for complying with local ordinances regulating noise level.

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

#### **5-1.15 RELATIONS WITH U.S. ARMY CORPS OF ENGINEERS**

Attention is directed to "Temporary Creek Diversion System" of these special provisions.

The location of the Napa Creek and seasonal wetlands are within an area controlled by the U.S. Army Corps of Engineers. A U.S. Army Corps of Engineers Permit has been issued covering work to be performed under this contract. The Contractor shall be fully informed of all rules, regulations and conditions of the permit that may govern the Contractor's operations in said area and shall conduct the Contractor's work accordingly. Said document shall be considered a part of, and shall become, an integral part of the special provisions and contract for this project.

Copies of the Permit may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916) 654-4490, and are available for inspection at the District 04 Duty Senior Office, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5209, fax (510) 622-1805, e-mail address Duty\_Senior\_District04@dot.ca.gov.

Any modifications to the permit which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Army Corps of Engineers for their consideration.

When the Contractor is notified by the Engineer that an modification to the permit is under consideration, no such work will be allowed on the proposed modification until the U.S. Army Corps of Engineers takes action on the proposed modification. Any modifications to any agreement between the Department of Transportation and the Army Corps of Engineers shall be fully binding on the Contractor, and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Full compensation for conforming to the requirements of this section shall be considered as included in the contract prices paid for the various contract items of work and no additional compensation will be allowed therefor.

#### **5-1.16 RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME**

Attention is directed to "Order of Work", "Clearing and Grubbing", and "Highway Planting" of these special provisions.

A portion of this project is located within the jurisdiction of the California Department of Fish and Game. A California Department of Fish and Game Streambed Alteration Agreement (1601) is applicable to this project. The Contractor shall be fully informed of the requirements of this agreement as well as rules, regulations, and conditions that may govern the Contractor's operations in these areas and shall conduct the work accordingly.

In order to comply with the Streambed Alteration Agreement, trimming of existing willow(s) and removal of existing eucalyptus trees are required at the Napa Creek work location.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone (916) 654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, California 94612-3717, telephone (510) 286-5209.

It is unlawful for any person to divert, obstruct or change the natural flow of the bed, channel or bank of a stream, river or lake without first notifying the Department of Fish and Game, unless the project or activity is noticed and constructed in conformance with conditions imposed under Fish and Game Code Section 1601.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

Modifications to the agreement between the Department of Transportation and the Department of Fish and Game which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Department of Fish and Game for their consideration.

When the Contractor is notified by the Engineer that a modification to the agreement is under consideration, no work shall be performed which is inconsistent with the original agreement or proposed modification until the Departments take action on the proposed modifications. Compensation for delay will be determined in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Modifications to any agreement between the Department of Transportation and the Department of Fish and Game will be fully binding on the Contractor. The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

#### **5-1.17 RELATIONS WITH CALIFORNIA STATE WATER QUALITY CONTROL BOARD**

The location of the project is within an area controlled by the State Water Quality Control Board. State Water Quality Control Board Orders No.99-08-DWQ, and No. 99-06-DWQ have been issued covering work to be performed under this contract. The Contractor shall be fully informed of rules, regulations, and conditions that may govern the Contractor's operations in the areas and shall conduct the work accordingly.

Copies of the order may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone (916) 654-4490, and are available for inspection at the office of the District Director of Transportation at District 04 Duty Senior Office, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5209, fax (510) 622-1805, e-mail address Duty\_Senior\_District04@dot.ca.gov.

Attention is directed to Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

Attention is directed to Section 8-1.06, "Time of Completion," of the Standard Specifications. Days during which the Contractor's operations are restricted in the floodway by the requirements of this section shall be considered to be nonworking days if these restrictions cause a delay in the current controlling operation or operations.



### **5-1.18 ENVIRONMENTALLY SENSITIVE AREA (GENERAL)**

The Contractors attention is directed to the designated Environmentally Sensitive Areas (ESA), shown on the plans, and to "Order of Work" of these special provisions. The exact location of the boundaries of environmentally sensitive areas shall be established by the Engineer and clearly delineated by the placement of temporary fence (Type ESA) as described in these special provisions.

Within the boundaries of an ESA, no project related activities shall take place. This specifically prohibits vehicle access, storage or transport of any materials, including hydrocarbon and lead contaminated material, or any other project related activities.

### **5-1.19 AERIALLY DEPOSITED LEAD**

Aerially deposited lead is present within the project limits. Aerially deposited lead is lead deposited within unpaved areas or formerly unpaved areas, primarily due to vehicle emissions.

Attention is directed to "Material Containing Aerially Deposited Lead" of these special provisions.

Portions of the Site Investigation Report are included in the "Material Information" handout. The complete report, entitled "Site Investigation Report for Route29/Trancas Street Interchange, Napa County, Napa, California" and "Site Investigation Report, Soil and Groundwater Investigation, Groundwater Fate and Transport Model, Highway 29 and Trancas Street Intersection" (IT Corporation, July 7, 1998) are available for inspection at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5209.

The Department has received from the California Department of Toxic Substances Control (DTSC) a Variance regarding the use of material containing aerially deposited lead. This project is subject to the conditions of the Variance, as amended. The Variance is available for inspection at the Department of Transportation, District 4.

Once the Contractor has completed the placement of material containing aerially deposited lead in conformance with these special provisions and as directed by the Engineer, the Contractor shall have no responsibility for such materials in place. The Department will not consider the Contractor a generator of such contaminated materials. Further cleanup, removal or remedial actions for such materials will not be required if handled or disposed of as specified herein.

Excavation, reuse, and disposal of material with aerially deposited lead shall be in conformance with all rules and regulations including, but not limited to, those of the following agencies:

United States Department of Transportation (USDOT)  
United States Environmental Protection Agency (USEPA)  
California Environmental Protection Agency (Cal-EPA)  
California Department of Health Services  
Department of Toxic Substances Control (DTSC), Region 2  
California Division of Occupational Safety and Health Administration (Cal-OSHA)  
Integrated Waste Management Board  
Regional Water Quality Control Board (RWQCB), Region 2  
Bay Area Air Quality Management District (AQMD)  
Napa County Department of Environmental Management (NCDEM)

Materials containing hazardous levels of lead shall be transported and disposed of in conformance with Federal and State laws and regulations, as amended, and county and municipal ordinances and regulations, as amended. Laws and regulations that govern this work include, but are not limited to:

Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act)  
Title 22, California Code of Regulations, Division 4.5 (Environmental Health Standards for the Management of Hazardous Waste)  
Title 8, California Code of Regulations

**SECTION 6. (BLANK)**

**SECTION 7. (BLANK)**

**SECTION 8. MATERIALS**

**SECTION 8-1. MISCELLANEOUS**

**8-1.01 SUBSTITUTION OF NON-METRIC MATERIALS AND PRODUCTS**

Only materials and products conforming to the requirements of the specifications shall be incorporated in the work. When metric materials and products are not available, and when approved by the Engineer, and at no cost to the State, materials and products in the United States Standard Measures which are of equal quality and of the required properties and characteristics for the purpose intended, may be substituted for the equivalent metric materials and products, subject to the following provisions:

- A. Materials and products shown on the plans or in the special provisions as being equivalent may be substituted for the metric materials and products specified or detailed on the plans.
- B. Before other non-metric materials and products will be considered for use, the Contractor shall furnish, at the Contractor's expense, evidence satisfactory to the Engineer that the materials and products proposed for use are equal to or better than the materials and products specified or detailed on the plans. The burden of proof as to the quality and suitability of substitutions shall be upon the Contractor and the Contractor shall furnish necessary information as required by the Engineer. The Engineer will be the sole judge as to the quality and suitability of the substituted materials and products and the Engineer's decision will be final.
- C. When the Contractor elects to substitute non-metric materials and products, including materials and products shown on the plans or in the special provisions as being equivalent, the list of sources of material specified in Section 6-1.01, "Source of Supply and Quality of Materials," of the Standard Specification shall include a list of substitutions to be made and contract items involved. In addition, for a change in design or details, the Contractor shall submit plans and working drawings in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The plans and working drawings shall be submitted at least 7 days before the Contractor intends to begin the work involved.

Unless otherwise specified, the following substitutions of materials and products will be allowed:

**SUBSTITUTION TABLE FOR SIZES OF HIGH STRENGTH STEEL FASTENERS**  
ASTM Designation: A 325M

| <b>METRIC SIZE SHOWN ON THE PLANS</b><br>mm x thread pitch | <b>SIZE TO BE SUBSTITUTED</b><br>inch |
|--|---------------------------------------|
| M16 x 2  | 5/8                                   |
| M20 x 2.5  | 3/4                                   |
| M22 x 2.5  | 7/8                                   |
| M24 x 3  | 1                                     |
| M27 x 3  | 1-1/8                                 |
| M30 x 3.5  | 1-1/4                                 |
| M36 x 4  | 1-1/2                                 |

# SUBSTITUTION TABLE FOR PLAIN WIRE REINFORCEMENT

ASTM Designation: A 82

| METRIC SIZE SHOWN ON THE PLANS<br><sup>2</sup><br>mm | SIZE TO BE SUBSTITUTED<br><sup>2</sup><br>inch x 100 |
|--|--|
| MW9  | W1.4   |
| MW10   | W1.6   |
| MW13   | W2.0   |
| MW15   | W2.3   |
| MW19   | W2.9   |
| MW20   | W3.1   |
| MW22   | W3.5   |
| MW25   | W3.9, except W3.5 in piles only                      |
| MW26   | W4.0   |
| MW30   | W4.7   |
| MW32   | W5.0   |
| MW35   | W5.4   |
| MW40   | W6.2   |
| MW45   | W6.5   |
| MW50   | W7.8   |
| MW55   | W8.5, except W8.0 in piles only                      |
| MW60   | W9.3   |
| MW70   | W10.9, except W11.0 in piles only                    |
| MW80   | W12.4  |
| MW90   | W14.0  |
| MW100  | W15.5  |

## SUBSTITUTION TABLE FOR BAR REINFORCEMENT

| METRIC BAR DESIGNATION<br>NUMBER <sup>1</sup> SHOWN ON THE PLANS | BAR DESIGNATION<br>NUMBER <sup>2</sup> TO BE SUBSTITUTED |
|--|--|
| 13   | 4  |
| 16   | 5  |
| 19   | 6  |
| 22   | 7  |
| 25   | 8  |
| 29   | 9  |
| 32   | 10   |
| 36   | 11   |
| 43   | 14   |
| 57   | 18   |

<sup>1</sup>Bar designation numbers approximate the number of millimeters of the nominal diameter of the bars.

<sup>2</sup>Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars.

No adjustment will be required in spacing or total number of reinforcing bars due to a difference in minimum yield strength between metric and non-metric bars.

SUBSTITUTION TABLE FOR SIZES OF:

(1) STEEL FASTENERS FOR GENERAL APPLICATIONS (ASTM Designation: A 307 or AASHTO Designation: M 314, Grade 36 or 55), and

(2) HIGH STRENGTH STEEL FASTENERS (ASTM Designation: A 325 or A 449)

| METRIC SIZE SHOWN ON THE PLANS<br>mm | SIZE TO BE SUBSTITUTED<br>inch |
|--------------------------------------|--------------------------------|
| 6 or 6.35                            | 1/4                            |
| 8 or 7.94                            | 5/16                           |
| 10 or 9.52                           | 3/8                            |
| 11 or 11.11                          | 7/16                           |
| 13 or 12.70                          | 1/2                            |
| 14 or 14.29                          | 9/16                           |
| 16 or 15.88                          | 5/8                            |
| 19 or 19.05                          | 3/4                            |
| 22 or 22.22                          | 7/8                            |
| 24, 25, or 25.40                     | 1                              |
| 29 or 28.58                          | 1-1/8                          |
| 32 or 31.75                          | 1-1/4                          |
| 35 or 34.93                          | 1-3/8                          |
| 38 or 38.10                          | 1-1/2                          |
| 44 or 44.45                          | 1-3/4                          |
| 51 or 50.80                          | 2                              |
| 57 or 57.15                          | 2-1/4                          |
| 64 or 63.50                          | 2-1/2                          |
| 70 or 69.85                          | 2-3/4                          |
| 76 or 76.20                          | 3                              |
| 83 or 82.55                          | 3-1/4                          |
| 89 or 88.90                          | 3-1/2                          |
| 95 or 95.25                          | 3-3/4                          |
| 102 or 101.60                        | 4                              |

**SUBSTITUTION TABLE FOR NOMINAL THICKNESS OF SHEET METAL**

| <b>UNCOATED HOT AND COLD ROLLED SHEETS</b>     |                                   | <b>HOT-DIPPED ZINC COATED SHEETS<br/>(GALVANIZED)</b> |                                   |
|--|-----------------------------------|---|-----------------------------------|
| <b>METRIC THICKNESS<br/>SHOWN ON THE PLANS</b> | <b>GAGE TO BE<br/>SUBSTITUTED</b> | <b>METRIC THICKNESS<br/>SHOWN ON THE PLANS</b>        | <b>GAGE TO BE<br/>SUBSTITUTED</b> |
| mm   | inch                              | mm  | inch                              |
| 7.94   | 0.3125                            | 4.270   | 0.1681                            |
| 6.07   | 0.2391                            | 3.891   | 0.1532                            |
| 5.69   | 0.2242                            | 3.510   | 0.1382                            |
| 5.31   | 0.2092                            | 3.132   | 0.1233                            |
| 4.94   | 0.1943                            | 2.753   | 0.1084                            |
| 4.55   | 0.1793                            | 2.372   | 0.0934                            |
| 4.18   | 0.1644                            | 1.994   | 0.0785                            |
| 3.80   | 0.1495                            | 1.803   | 0.0710                            |
| 3.42   | 0.1345                            | 1.613   | 0.0635                            |
| 3.04   | 0.1196                            | 1.461   | 0.0575                            |
| 2.66   | 0.1046                            | 1.311   | 0.0516                            |
| 2.28   | 0.0897                            | 1.158   | 0.0456                            |
| 1.90   | 0.0747                            | 1.006 or 1.016  | 0.0396                            |
| 1.71   | 0.0673                            | 0.930   | 0.0366                            |
| 1.52   | 0.0598                            | 0.853   | 0.0336                            |
| 1.37   | 0.0538                            | 0.777   | 0.0306                            |
| 1.21   | 0.0478                            | 0.701   | 0.0276                            |
| 1.06   | 0.0418                            | 0.627   | 0.0247                            |
| 0.91   | 0.0359                            | 0.551   | 0.0217                            |
| 0.84   | 0.0329                            | 0.513   | 0.0202                            |
| 0.76   | 0.0299                            | 0.475   | 0.0187                            |
| 0.68   | 0.0269                            | -----   | -----                             |
| 0.61   | 0.0239                            | -----   | -----                             |
| 0.53   | 0.0209                            | -----   | -----                             |
| 0.45   | 0.0179                            | -----   | -----                             |
| 0.42   | 0.0164                            | -----   | -----                             |
| 0.38   | 0.0149                            | -----   | -----                             |

**SUBSTITUTION TABLE FOR WIRE**

| <b>METRIC THICKNESS<br/>SHOWN ON THE PLANS<br/>mm</b> | <b>WIRE THICKNESS<br/>TO BE SUBSTITUTED<br/>inch</b> | <b>GAGE NO.</b> |
|---|--|-----------------|
| 6.20  | 0.244  | 3               |
| 5.72  | 0.225  | 4               |
| 5.26  | 0.207  | 5               |
| 4.88  | 0.192  | 6               |
| 4.50  | 0.177  | 7               |
| 4.11  | 0.162  | 8               |
| 3.76  | 0.148  | 9               |
| 3.43  | 0.135  | 10              |
| 3.05  | 0.120  | 11              |
| 2.69  | 0.106  | 12              |
| 2.34  | 0.092  | 13              |
| 2.03  | 0.080  | 14              |
| 1.83  | 0.072  | 15              |
| 1.57  | 0.062  | 16              |
| 1.37  | 0.054  | 17              |
| 1.22  | 0.048  | 18              |
| 1.04  | 0.041  | 19              |
| 0.89  | 0.035  | 20              |

**SUBSTITUTION TABLE FOR PIPE PILES**

| <b>METRIC SIZE<br/>SHOWN ON THE PLANS<br/>mm x mm</b> | <b>SIZE<br/>TO BE SUBSTITUTED<br/>inch x inch</b> |
|---|---|
| PP 360 x 4.55   | NPS 14 x 0.179                                    |
| PP 360 x 6.35   | NPS 14 x 0.250                                    |
| PP 360 x 9.53   | NPS 14 x 0.375                                    |
| PP 360 x 11.12  | NPS 14 x 0.438                                    |
| PP 406 x 12.70  | NPS 16 x 0.500                                    |
| PP 460 x T  | NPS 18 x T"                                       |
| PP 508 x T  | NPS 20 x T"                                       |
| PP 559 x T  | NPS 22 x T"                                       |
| PP 610 x T  | NPS 24 x T"                                       |
| PP 660 x T  | NPS 26 x T"                                       |
| PP 711 x T  | NPS 28 x T"                                       |
| PP 762 x T  | NPS 30 x T"                                       |
| PP 813 x T  | NPS 32 x T"                                       |
| PP 864 x T  | NPS 34 x T"                                       |
| PP 914 x T  | NPS 36 x T"                                       |
| PP 965 x T  | NPS 38 x T"                                       |
| PP 1016 x T   | NPS 40 x T"                                       |
| PP 1067 x T   | NPS 42 x T"                                       |
| PP 1118 x T   | NPS 44 x T"                                       |
| PP 1219 x T   | NPS 48 x T"                                       |
| PP 1524 x T   | NPS 60 x T"                                       |

The thickness in millimeters (T) represents an exact conversion of the thickness in inches (T").

**SUBSTITUTION TABLE FOR STRUCTURAL TIMBER AND LUMBER**

| <b>METRIC MINIMUM<br/>DRESSED DRY,<br/>SHOWN ON THE PLANS<br/>mm x mm</b> | <b>METRIC MINIMUM<br/>DRESSED GREEN,<br/>SHOWN ON THE PLANS<br/>mm x mm</b> | <b>NOMINAL<br/>SIZE<br/>TO BE SUBSTITUTED<br/>inch x inch</b> |
|---|---|---|
| 19x89   | 20x90   | 1x4   |
| 38x89   | 40x90   | 2x4   |
| 64x89   | 65x90   | 3x4   |
| 89x89   | 90x90   | 4x4   |
| 140x140   | 143x143   | 6x6   |
| 140x184   | 143x190   | 6x8   |
| 184x184   | 190x190   | 8x8   |
| 235x235   | 241x241   | 10x10   |
| 286x286   | 292x292   | 12x12   |

**SUBSTITUTION TABLE FOR NAILS AND SPIKES**

| <b>METRIC COMMON NAIL,<br/>SHOWN ON THE PLANS<br/><br/>Length, mm<br/>Diameter, mm</b> | <b>METRIC BOX NAIL,<br/>SHOWN ON THE PLANS<br/><br/>Length, mm<br/>Diameter, mm</b> | <b>METRIC SPIKE,<br/>SHOWN ON THE<br/>PLANS<br/>Length, mm<br/>Diameter, mm</b> | <b>SIZE<br/>TO BE<br/>SUBSTITUTED<br/>Penny-weight</b> |
|--|---|---|--|
| 50.80<br>2.87  | 50.80<br>2.51   | ————  | 6d   |
| 63.50<br>3.33  | 63.50<br>2.87   | ————  | 8d   |
| 76.20<br>3.76  | 76.20<br>3.25   | 76.20<br>4.88   | 10d  |
| 82.55<br>3.76  | 82.55<br>3.25   | 82.55<br>4.88   | 12d  |
| 88.90<br>4.11  | 88.90<br>3.43   | 88.90<br>5.26   | 16d  |
| 101.60<br>4.88   | 101.60<br>3.76  | 101.60<br>5.72  | 20d  |
| 114.30<br>5.26   | 114.30<br>3.76  | 114.30<br>6.20  | 30d  |
| 127.00<br>5.72   | 127.00<br>4.11  | 127.00<br>6.68  | 40d  |
| ————   | ————  | 139.70<br>7.19  | 50d  |
| ————   | ————  | 152.40<br>7.19  | 60d  |

**SUBSTITUTION TABLE FOR IRRIGATION COMPONENTS**

| <b>METRIC</b><br><b>WATER METERS, TRUCK LOADING STANDPIPES,</b><br><b>VALVES, BACKFLOW PREVENTERS, FLOW</b><br><b>SENSORS, WYE STRAINERS, FILTER ASSEMBLY</b><br><b>UNITS, PIPE SUPPLY LINES, AND PIPE IRRIGATION</b><br><b>SUPPLY LINES</b><br><b>SHOWN ON THE PLANS</b><br><b>DIAMETER NOMINAL (DN) mm</b> | <b>NOMINAL</b><br><b>SIZE</b><br><b>TO BE SUBSTITUTED</b><br><br><br><b>inch</b> |
|--|--|
| 15   | 1/2  |
| 20   | 3/4  |
| 25   | 1  |
| 32   | 1-1/4  |
| 40   | 1-1/2  |
| 50   | 2  |
| 65   | 2-1/2  |
| 75   | 3  |
| 100  | 4  |
| 150  | 6  |
| 200  | 8  |
| 250  | 10   |
| 300  | 12   |
| 350  | 14   |
| 400  | 16   |

Unless otherwise specified, substitutions of United States Standard Measures standard structural shapes corresponding to the metric designations shown on the plans and in conformance with the requirements in ASTM Designation: A 6/A 6M, Annex 2, will be allowed.

#### **8-1.02 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS**

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

For those categories of materials included in the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included in the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

#### **PAVEMENT MARKERS, PERMANENT TYPE**

##### **Retroreflective**

- A. Apex, Model 921 (100 mm x 100 mm)
- B. Ray-O-Lite, Models SS (100 mm x 100 mm), RS (100 mm x 100 mm) and AA (100 mm x 100 mm)
- C. Stimsonite, Models 88 (100 mm x 100 mm), 911 (100 mm x 100 mm), 953 (70 mm x 114 mm)
- D. 3M Series 290 (89 mm x 100 mm)



**Retroreflective With Abrasion Resistant Surface (ARS)**

- A. Apex, Model 921AR (100 mm x 100 mm)
- B. Ray-O-Lite "AA" ARS (100 mm x 100 mm)
- C. Stimsonite, Models 911 (100 mm x 100 mm), 953 (70 mm x 114 mm)
- D. 3M Series 290 (89 mm x 100 mm)

**Retroreflective With Abrasion Resistant Surface (ARS)**

(Used for recessed applications)

- A. Stimsonite, Model 948 (58 mm x 119 mm)
  - B. Ray-O-Lite, Model 2002 (58 mm x 117 mm)
  - C. Stimsonite, Model 944SB (51 mm x 100 mm)\*
  - D. Ray-O-Lite, Model 2004 ARS (51 mm x 100 mm)\*
- \*For use only in 114 mm wide (older) recessed slots

**Non-Reflective For Use With Epoxy Adhesive, 100 mm Round**

- A. Apex Universal (Ceramic)
- B. Highway Ceramics, Inc. (Ceramic)

**Non-Reflective For Use With Bitumen Adhesive, 100 mm Round**

- A. Alpine Products, "D-Dot" and "ANR" (ABS)
- B. Apex Universal (Ceramic)
- C. Apex Universal, Model 929 (ABS)
- D. Elgin Molded Plastics, "Empco-Lite" Model 900 (ABS)
- E. Highway Ceramics, Inc. (Ceramic)
- F. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
- G. Interstate Sales, "Diamond Back" (ABS) and (Polypropylene)
- H. Novabrite Models Adot-w (White) Adot-y (Yellow), (ABS)
- I. Road Creations, Model RCB4NR (Acrylic)
- J. Zumar Industries, "Titan TM40A" (ABS)

**PAVEMENT MARKERS, TEMPORARY TYPE****Temporary Markers For Long Term Day/Night Use (6 months or less)**

- A. Apex Universal, Model 924 (100 mm x 100 mm)
- B. Elgin Molded Plastics, "Empco-Lite" Model 901 (100 mm x 100 mm)
- C. Road Creations, Model R41C (100 mm x 100 mm)
- D. Vega Molded Products "Temporary Road Marker" (75 mm x 100 mm)

**Temporary Markers For Short Term Day/Night Use (14 days or less)**

(For seal coat or chip seal applications, clear protective covers are required)

- A. Apex Universal, Model 932
- B. Davidson Plastics, Models T.O.M., T.R.P.M., and "HH" (High Heat)
- C. Hi-Way Safety, Inc., Model 1280/1281

**STRIPING AND PAVEMENT MARKING MATERIAL****Permanent Traffic Striping and Pavement Marking Tape**

- A. Advanced Traffic Marking, Series 300 and 400
- B. Brite-Line, Series 1000
- C. Brite-Line "DeltaLine XRP"
- D. Swarco Industries, "Director 35" (For transverse application only)
- E. Swarco Industries, "Director 60"
- F. 3M, "Stamark" Series 380 and 5730
- G. 3M, "Stamark" Series 420 (For transverse application only)

**Temporary (Removable) Striping and Pavement Marking Tape (6 months or less)**

- A. Advanced Traffic Marking, Series 200
- B. Brite-Line, Series 100
- C. P.B. Laminations, Aztec, Grade 102
- D. Swarco Industries, "Director-2"
- E. 3M, "Stamark," Series 620
- F. 3M Series A145 Removable Black Line Mark  
(Black Tape: For use only on Asphalt Concrete Surfaces)
- G. Advanced Traffic Marking Black "Hide-A-Line"  
(Black Tape: For use only on Asphalt Concrete Surfaces)
- H. Brite-Line "BTR" Black Removable Tape  
(Black Tape: For use only on Asphalt Concrete Surfaces)

**Preformed Thermoplastic (Heated in place)**

- A. Flint Trading, "Premark" and "Premark 20/20 Flex"
- B. Pavemark, "Hotape"

**Removable Traffic Paint**

- A. Belpro, Series 250/252 and No. 93 Remover

**Ceramic Surfacing Laminate, 150 mm x 150 mm**

- A. Safeline Industries/Highway Ceramics, Inc.

**CLASS 1 DELINEATORS**

**One Piece Driveable Flexible Type, 1700 mm**

- A. Carsonite, Curve-Flex CFRM-400
- B. Carsonite, Roadmarker CRM-375
- C. Davidson Plastics, "Flexi-Guide Models 400 and 566"
- D. FlexStake, Model 654 TM
- E. GreenLine Models HWD1-66 and CGD1-66
- F. J. Miller Industries, Model JMI-375 (with soil anchor)

**Special Use Flexible Type, 1700 mm**

- A. Carsonite, "Survivor" (with 450 mm U-Channel base)
- B. FlexStake, Model 604
- C. GreenLine Models HWD and CGD (with 450 mm U-Channel base)
- D. Safe-Hit with 200 mm pavement anchor (SH248-GP1)
- E. Safe-Hit with 380 mm soil anchor (SH248-GP2) and with 450 mm soil anchor (SH248-GP3)

**Surface Mount Flexible Type, 1200 mm**

- A. Bent Manufacturing Company, Masterflex Model MF-180EX-48
- B. Carsonite, "Super Duck II"
- C. FlexStake, Surface Mount, Models 704 and 754 TM

**CHANNELIZERS**

**Surface Mount Type, 900 mm**

- A. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) and MF-180-36 (Flat)
- B. Carsonite, "Super Duck" (Flat SDF-436, Round SDR-336)
- C. Carsonite, "Super Duck II" Model SDCF203601MB "The Channelizer"
- D. Davidson Plastics, Flex-Guide Models FG300LD and FG300UR
- E. FlexStake, Surface Mount, Models 703 and 753 TM
- F. GreenLine, Model SMD-36
- G. Hi-Way Safety, Inc. "Channel Guide Channelizer" Model CGC36
- H. The Line Connection, "Dura-Post" Model DP36-3 (Permanent)

- I. The Line Connection, "Dura-Post" Model DP36-3C (Temporary)
- J. Repo, Models 300 and 400
- K. Safe-Hit, Guide Post, Model SH236SMA

#### **CONICAL DELINEATORS, 1070 mm**

(For 700 mm Traffic Cones, see Standard Specifications)

- A. Bent Manufacturing Company "T-Top"
- B. Plastic Safety Systems "Navigator-42"
- C. Roadmaker Company "Stacker"
- D. Traffix Devices "Grabber"

#### **OBJECT MARKERS**

##### **Type "K", 450 mm**

- A. Carsonite, Model SMD-615
- B. FlexStake, Model 701 KM
- C. Repo, Models 300 and 400
- D. Safe-Hit, Model SH718SMA
- E. The Line Connection, Model DP21-4K

##### **Type "K-4" / "Q" Object Markers, 600 mm**

- A. Bent Manufacturing "Masterflex" Model MF-360-24
- B. Carsonite, Super Duck II
- C. FlexStake, Model 701KM
- D. Repo, Models 300 and 400
- E. Safe-Hit, Models SH8 24SMA\_WA and SH8 24GP3\_WA
- F. The Line Connection, Model DP21-4Q

#### **TEMPORARY RAILING (TYPE K) REFLECTORS AND CONCRETE BARRIER MARKERS**

##### **Impactable Type**

- A. ARTUK, "FB"
- B. Davidson Plastics, Model PCBM-12
- C. Duraflex Corp., "Flexx 2020" and "Electriflexx"
- D. Hi-Way Safety, Inc., Model GMKRM100

##### **Non-Impactable Type**

- A. ARTUK, JD Series
- B. Stimsonite, Model 967 (with 83 mm Acrylic cube corner reflector)
- C. Stimsonite, Model 967LS
- D. Vega Molded Products, Models GBM and JD

#### **THREE BEAM BARRIER MARKERS**

(For use to the left of traffic)

- A. Duraflex Corp., "Railrider"
- B. Davidson Plastics, "Mini" (75 mm x 254 mm)

#### **CONCRETE BARRIER DELINEATORS, 400 mm**

(For use to the right of traffic. When mounted on top of barrier, places top of reflective element at 1200 mm)

- A. Davidson Plastics, Model PCBM T-16
- B. Safe-Hit, Model SH216RBM
- C. Sun-Lab Technology, "Safety Guide Light, Model TM," 130 mm x 130 mm x 80 mm

#### **CONCRETE BARRIER-MOUNTED MINI-DRUM (260 mm x 360 mm x 570 mm)**

- A. Stinson Equipment Company "SaddleMarker"

## **SOUND WALL DELINEATOR**

(Applied vertically. Place top of 75 mm x 300 mm reflective element at 1200 mm above roadway)

- A. Davidson Plastics, PCBM S-36
- B. Sun-Lab Technology, "Safety Guide Light, Model SM12," 130 mm x 130 mm x 80 mm

## **GUARD RAILING DELINEATOR**

(Top of reflective element at 1200 mm above plane of roadway)

### **Wood Post Type, 686 mm**

- A. Carsonite, Model 427
- B. Davidson Plastics FG 427 and FG 527
- C. FlexStake, Model 102 GR
- D. GreenLine GRD 27
- E. J. Miller Model JMI-375G
- F. Safe-Hit, Model SH227GRD

### **Steel Post Type**

- A. Carsonite, Model CFGR-327 with CFGRBK300 Mounting Bracket

## **RETROREFLECTIVE SHEETING**

### **Channelizers, Barrier Markers, and Delineators**

- A. 3M, High Intensity
- B. Reflexite, PC-1000 Metalized Polycarbonate
- C. Reflexite, AC-1000 Acrylic
- D. Reflexite, AP-1000 Metalized Polyester
- E. Reflexite, AR-1000 Abrasion Resistant Coating
- F. Avery Dennison T-6500 Series (Formerly Stimsonite, Series 6200) (For rigid substrate devices only)

### **Traffic Cones, 330 mm Sleeves**

- A. Reflexite SB (Polyester), Vinyl or "TR" (Semi-transparent)

### **Traffic Cones, 100 mm and 150 mm Sleeves**

- A. 3M Series 3840
- B. Reflexite Vinyl, "TR" (Semi-transparent) or "Conformalite"

### **Barrels and Drums**

- A. Reflexite, "Super High Intensity" or "High Impact Drum Sheeting"
- B. 3M Series 3810

### **Barricades: Type I, Engineer Grade**

- A. American Decal, Adcolite
- B. Avery Dennison, T-1500 and T-1600
- C. 3M, Scotchlite, Series CW

### **Barricades: Type II, Super Engineer Grade**

- A. Avery Dennison, T-2500 Series
- B. Kiwalite Type II
- C. Nikkalite 1800 Series

### **Signs: Type II, Super Engineer Grade**

- A. Avery Dennison, T-2500 Series
- B. Kiwalite, Type II
- C. Nikkalite 1800 Series

### **Signs: Type III, High-Intensity Grade**

- A. 3M Series 3800
- B. Nippon Carbide, Nikkalite Brand Ultralite Grade II

**Signs: Type IV, High-Intensity Prismatic Grade**

- A. Avery Dennison T-6500 (Formerly Stimsonite Series 6200)

**Signs: Type VII, High-Intensity Prismatic Grade**

- A. 3M Series 3900

**Signs: Type VI, Roll-Up Signs**

- A. Reflexite, Vinyl (Orange)
- B. Reflexite "SuperBright" (Fluorescent orange)
- C. Reflexite "Marathon" (Fluorescent orange)
- D. 3M Series RS34 (Orange) and RS20 (Fluorescent orange)

**SPECIALTY SIGN (All Plastic)**

- A. All Sign Products, STOP Sign, 750 mm

**SIGN SUBSTRATE FOR CONSTRUCTION AREA SIGNS**

**Aluminum**

**Fiberglass Reinforced Plastic (FRP)**

- A. Sequentia, "Polyplate"
- B. Fiber-Brite

**8-1.03 ENGINEERING FABRICS**

Engineering fabrics shall conform to the provisions in Section 88, "Engineering Fabrics," of the Standard Specifications and these special provisions.

The requirement that ultraviolet (UV) treated fabrics be submitted to the Transportation Laboratory at least 45 days prior to use shall not apply.

**SECTION 8-2. CONCRETE**

**8-2.01 PORTLAND CEMENT CONCRETE**

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Unless the use of a mineral admixture is prohibited, whenever the word "cement" is used in the Standard Specifications or the special provisions, it shall be understood to mean "cementitious material" when both of the following conditions are met:

- A. The cement content of portland cement concrete is specified, and
- B. Section 90, "Portland Cement Concrete," of the Standard Specifications is referenced.

Unless otherwise specified, a Type C accelerating chemical admixture conforming to the requirements in ASTM Designation: C 494 may be used in portland cement concrete for precast steam cured concrete members.

Section 90-1.01, "Description," of the Standard Specifications is amended to read:

**90-1.01 DESCRIPTION**

- Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.
- Unless otherwise specified, cementitious material to be used in portland cement concrete shall conform to the provisions for cement and mineral admixtures in Section 90-2, "Materials," and shall be either: 1) "Type IP (MS) Modified" cement or 2) a combination of "Type II Modified" portland cement and mineral admixture.
- Concrete for each portion of the work shall comply with the provisions for the Class, cementitious material content in kilograms per cubic meter, 28-day compressive strength, minor concrete or commercial quality concrete, as shown on the plans or specified in these specifications or the special provisions.
  - Class 1 concrete shall contain not less than 400 kg of cementitious material per cubic meter.
  - Class 2 concrete shall contain not less than 350 kg of cementitious material per cubic meter.
  - Class 3 concrete shall contain not less than 300 kg of cementitious material per cubic meter.

- Class 4 concrete shall contain not less than 250 kg of cementitious material per cubic meter.
- Minor concrete shall contain not less than 325 kg of cementitious material per cubic meter unless otherwise specified in these specifications or the special provisions.
- Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic meter of concrete in structures or portions of structures shall conform to the following:

| Use   | Cementitious Material Content<br>(kg/m <sup>3</sup> ) |
|---|---|
| Concrete which is designated by compressive strength: |   |
| Deck slabs and slab spans of bridges                  | 400 min., 475 max.                                    |
| Roof sections of exposed top box culverts             | 400 min., 475 max.                                    |
| Other portions of structures                          | 350 min., 475 max.                                    |
| Concrete not designated by compressive strength:      |   |
| Deck slabs and slab spans of bridges                  | 400 min.  |
| Roof sections of exposed top box culverts             | 400 min.  |
| Prestressed members                                   | 400 min.  |
| Seal courses  | 400 min.  |
| Other portions of structures                          | 350 min.  |
| Concrete for precast members                          | 350 min., 550 max.                                    |

- Whenever the 28 day compressive strength shown on the plans is greater than 25 MPa, the concrete shall be considered to be designated by compressive strength. If the plans show a 28 day compressive strength which is 31 MPa or greater, an additional 7 days will be allowed to obtain the specified strength. The 28 day compressive strengths shown on the plans which are 25 MPa or less are shown for design information only and are not to be considered a requirement for acceptance of the concrete.
  - Concrete designated by compressive strength shall be proportioned such that the concrete will conform to the strength shown on the plans or specified in the special provisions.
  - The Contractor shall determine the mix proportions for all concrete except pavement concrete. The Engineer will determine the mix proportions for pavement concrete.
  - Before using concrete for which the mix proportions have been determined by the Contractor, or in advance of revising those mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.
  - Compliance with cementitious material content requirements will be verified in conformance with procedures described in California Test 518 for cement content. For testing purposes, mineral admixture shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.
  - If any concrete used in the work has a cementitious material content, consisting of cement, mineral admixture, or cement plus mineral admixture, which is less than the minimum required for the work, the concrete shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place and the Contractor shall pay to the State \$0.55 for each kilogram of cement, mineral admixture, or cement plus mineral admixture which is less than the minimum required for the work. The Department may deduct the amount from moneys due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions for cementitious material content will be made based on the results of California Test 518.
  - The requirements of the preceding paragraph shall not apply to minor concrete or commercial quality concrete.
  - Concrete for which the mix proportions are determined either by the Contractor or the Engineer shall conform to the requirements of this Section 90.

The first paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is amended to read:

#### **90-2.01 PORTLAND CEMENT**

- Unless otherwise specified, portland cement shall be either "Type IP (MS) Modified" cement or "Type II Modified" portland cement.
- "Type IP (MS) Modified" cement shall conform to the specifications for Type IP (MS) cement in ASTM Designation: C 595, and shall be comprised of an intimate mixture of Type II cement and not more than 25 percent of a mineral admixture. The type and minimum amount of mineral admixture used in the manufacture of "Type IP (MS) Modified" cement shall be in conformance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."

- "Type II Modified" portland cement shall conform to the requirements for Type II portland cement in ASTM Designation: C 150.
- In addition, "Type IP (MS) Modified" cement and "Type II Modified" portland cement shall conform to the following requirements:

- A. The cement shall not contain more than 0.60 percent by mass of alkalis, calculated as the percentage of Na<sub>2</sub>O plus 0.658 times the percentage of K<sub>2</sub>O, when determined by either direct intensity flame photometry or by the atomic absorption method. The instrument and procedure used shall be qualified as to precision and accuracy in conformance with the requirements in ASTM Designation: C 114.
- B. The autoclave expansion shall not exceed 0.50 percent.
- C. Mortar, containing the cement to be used and Ottawa sand, when tested in conformance with California Test 527, shall not expand in water more than 0.010 percent and shall not contract in air more than 0.048 percent except that when cement is to be used for precast prestressed concrete piling, precast prestressed concrete members or steam cured concrete products, the mortar shall not contract in air more than 0.053 percent.

The second paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is amended to read:

- Type III and Type V portland cements shall conform to the requirements in ASTM Designation: C 150, and the additional requirements listed above for Type II Modified portland cement, except that when tested in conformance with California Test 527, mortar containing Type III portland cement shall not contract in air more than 0.075 percent.

The third paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is deleted.

The twelfth paragraph in Section 90-2.02, "Aggregates," of the Standard Specifications is deleted.

The first paragraph in Section 90-2.03, "Water," of the Standard Specifications is amended to read:.

#### **90-2.03 WATER**

- In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO<sub>4</sub>. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO<sub>4</sub>. In no case shall the water contain an amount of impurities that will cause either: 1) a change in the setting time of cement of more than 25 percent when tested in conformance with the requirements in ASTM Designation: C 191 or ASTM Designation: C 266 or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent, when tested in conformance with the requirements in ASTM Designation: C 109, when compared to the results obtained with distilled water or deionized water, tested in conformance with the requirements in ASTM Designation: C 109.

The following section is added to Section 90-2, "Materials," of the Standard Specifications:

#### **90-2.04 ADMIXTURE MATERIALS**

- Admixture materials shall conform to the requirements in the following ASTM Designations:
  - A. Chemical Admixtures—ASTM Designation: C 494.
  - B. Air-entraining Admixtures—ASTM Designation: C 260.
  - C. Calcium Chloride—ASTM Designation: D 98.
  - D. Mineral Admixtures—Coal fly ash, raw or calcined natural pozzolan as specified in ASTM Designation: C 618. Silica fume conforming to the requirements in ASTM Designation: C 1240, with reduction of mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.
- Mineral admixtures shall be used in conformance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."

The first paragraph in Section 90-3.03, "Fine Aggregate Grading," is amended to read:

Fine aggregate shall be graded within the following limits:

| Sieve Sizes  | Percentage Passing |                     |
|--------------|--------------------|---------------------|
|              | Operating Range    | Contract Compliance |
| 9.5-mm       | 100                | 100                 |
| 4.75-mm      | 95-100             | 93-100              |
| 2.36-mm      | 65-95              | 61-99               |
| 1.18-mm      | $X \pm 10$         | $X \pm 13$          |
| 600- $\mu$ m | $X \pm 9$          | $X \pm 12$          |
| 300- $\mu$ m | $X \pm 6$          | $X \pm 9$           |
| 150- $\mu$ m | 2-12               | 1-15                |
| 75- $\mu$ m  | 0-8                | 0-10                |

Section 90-4.02, "Materials," of the Standard Specifications is amended to read:

#### **90-4.02 MATERIALS**

- Admixture materials shall conform to the provisions in Section 90-2.04, "Admixture Materials."

Section 90-4.05, "Optional Use of Chemical Admixtures," of the Standard Specifications is amended to read:

#### **90-4.05 OPTIONAL USE OF CHEMICAL ADMIXTURES**

- The Contractor will be permitted to use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate concrete construction application subject to the following conditions:

- When a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by mass except that the resultant cementitious material content shall be not less than 300 kilograms per cubic meter.
- When a reduction in cementitious material content is made, the dosage of admixture used shall be the dosage used in determining approval of the admixture.

Section 90-4.07, "Optional Use of Air-entraining Admixtures," of the Standard Specifications is amended to read:

#### **90-4.07 OPTIONAL USE OF AIR-ENTRAINING ADMIXTURES**

- When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate as provided in Section 40-1.015, "Cement Content."

Section 90-4.08, "Required Use of Mineral Admixtures," of the Standard Specifications is amended to read:

#### **90-4.08 REQUIRED USE OF MINERAL ADMIXTURES**

- Unless otherwise specified, mineral admixture shall be combined with cement to make cementitious material for use in portland cement concrete.
  - The calcium oxide content of mineral admixtures shall not exceed 10 percent and the available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM Designation: C618.
  - The amounts of cement and mineral admixture used in cementitious material for portland cement concrete shall be sufficient to satisfy the minimum cementitious material content requirements specified in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and shall conform to the following:
- The minimum amount of cement shall not be less than 75 percent by mass of the specified minimum cementitious material content.
  - The minimum amount of mineral admixture to be combined with cement shall be determined using one of the following criteria:



1. When the calcium oxide content of a mineral admixture, as determined in conformance with the requirements in ASTM Designation: C618 and the provisions in Section 90-2.04, "Admixture Materials," is equal to or less than 2 percent by mass, the amount of mineral admixture shall not be less than 15 percent by mass of the total amount of cementitious material to be used in the mix.
  2. When the calcium oxide content of a mineral admixture, as determined in conformance with the requirements in ASTM Designation: C618 and the provisions in Section 90-2.04, "Admixture Materials," is greater than 2 percent, the amount of mineral admixture shall not be less than 25 percent by mass of the total amount of cementitious material to be used in the mix.
  3. When a mineral admixture is used, which conforms to the provisions for silica fume in Section 90-2.04, "Admixture Materials," the amount of mineral admixture shall not be less than 10 percent by mass of the total amount of cementitious material to be used in the mix.
- C. If more than the required amount of cementitious material is used, the additional cementitious material in the mix may be either cement, a mineral admixture conforming to the provisions in Section 90-2.04, "Admixture Materials," or a combination of both; however, the maximum total amount of mineral admixture shall not exceed 35 percent by mass of the total amount of cementitious material to be used in the mix. Where Section 90-1.01, "Description," specifies a maximum cementitious content in kilograms per cubic meter, the total mass of cement and mineral admixture per cubic meter shall not exceed the specified maximum cementitious material content.

Section 90-4.09, "Optional Use of Mineral Admixtures," of the Standard Specifications is deleted.

Section 90-4.11, "Storage, Proportioning, and Dispensing of Mineral Admixtures," of the Standard Specifications is amended to read:

#### **90-4.11 STORAGE, PROPORTIONING, AND DISPENSING OF MINERAL ADMIXTURES**

- Mineral admixtures shall be protected from exposure to moisture until used. Sacked material shall be piled to permit access for tally, inspection, and identification for each shipment.
- Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper.
- Mineral admixtures shall be incorporated into concrete using equipment conforming to the requirements for cement weigh hoppers, and charging and discharging mechanisms in ASTM Designation: C 94, in Section 90-5.03, "Proportioning," and in this Section 90-4.11.
- When interlocks are required for cement and mineral admixture charging mechanisms by Section 90-5.03A, "Proportioning for Pavement," and cement and mineral admixtures are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of mineral admixture until the mass of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."
- Mineral admixture used in concrete for exposed surfaces of like elements of a structure shall be from the same source and of the same percentage.

Section 90-5.02, "Proportioning Devices," of the Standard Specifications is amended to read:

#### **90-5.02 PROPORTIONING DEVICES**

- Weighing, measuring or metering devices used for proportioning materials shall conform to the provisions in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, automatic weighing systems used shall comply with the provisions for automatic proportioning devices in Section 90-5.03A, "Proportioning for Pavement." These automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and mineral admixture for one batch of concrete is a single operation of a switch or starter.
- Proportioning devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy.
- Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the plant is in operation, the mass of each batch of material shall not vary from the mass designated by the Engineer by more than the tolerances specified herein.
- Equipment for cumulative weighing of aggregate shall have a zero tolerance of  $\pm 0.5$  percent of the designated total batch mass of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be  $\pm 0.5$  percent of the individual batch mass designated for each size of aggregate. Equipment for cumulative weighing of cement and mineral admixtures shall have a zero tolerance of  $\pm 0.5$  percent of the designated total batch mass of the cement and mineral admixture. Equipment for weighing cement or mineral admixture separately shall have a zero tolerance of  $\pm 0.5$

percent of their designated individual batch masses. Equipment for measuring water shall have a zero tolerance of  $\pm 0.5$  percent of its designated mass or volume.

- The mass indicated for a batch of material shall not vary from the preselected scale setting by more than the following:

- A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch mass of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch masses.
- B. Cement shall be within 1.0 percent of its designated batch mass. When weighed individually, mineral admixture shall be within 1.0 percent of its designated batch mass. When mineral admixture and cement are permitted to be weighed cumulatively, cement shall be weighed first to within 1.0 percent of its designated batch mass, and the total for cement and mineral admixture shall be within 1.0 percent of the sum of their designated batch masses.
- C. Water shall be within 1.5 percent of its designated mass or volume.

- Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, mineral admixture, or cement plus mineral admixture and aggregates shall not exceed that of commercially available scales having single graduations indicating a mass not exceeding the maximum permissible mass variation above, except that no scale shall be required having a capacity of less than 500 kg, with 0.5 kg graduations.

Section 90-5.03, "Proportioning," excluding Section 90-5.03A, "Proportioning for Pavement," of the Standard Specifications is amended to read:

### **90-5.03 PROPORTIONING**

- Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cement, mineral admixture, and water as provided in these specifications. Aggregates shall be proportioned by mass.

- At the time of batching, aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry mass.

- Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

- Bulk "Type IP (MS) Modified" cement that conforms to the provisions in Section 90-2.01, "Portland Cement," shall be weighed in an individual hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer.

- Bulk cement to be blended with mineral admixture for use in portland cement concrete for pavement and structures may be weighed in separate, individual weigh hoppers or may be weighed in the same weigh hopper with mineral admixture and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer. If the cement and mineral admixture are weighed cumulatively, the cement shall be weighed first.

- When cement and mineral admixtures are weighed in separate weigh hoppers, the weigh systems for the proportioning of the aggregate, the cement, and the mineral admixture shall be individual and distinct from other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute an individual and independent material weighing device. The cement and the mineral admixture shall be discharged into the mixer simultaneously with the aggregate.

- The scale and weigh hopper for bulk weighing cement, mineral admixture, and cement plus mineral admixture shall be separate and distinct from the aggregate weighing equipment.

- When the source of an aggregate is changed for concrete structures, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using such aggregates. When the source of an aggregate is changed for other concrete, the Engineer shall be allowed sufficient time to adjust the mix and such aggregates shall not be used until necessary adjustments are made.

- For batches with a volume of one cubic meter or more, the batching equipment shall conform to one of the following combinations:

- A. Separate boxes and separate scale and indicator for weighing each size of aggregate.
- B. Single box and scale indicator for all aggregates.
- C. Single box or separate boxes and automatic weighing mechanism for all aggregates.

- In order to check the accuracy of batch masses, the gross mass and tare mass of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined when ordered by the Engineer. The equipment shall be weighed at the Contractor's expense on scales designated by the Engineer.

Section 90-5.03A, "Proportioning for Pavement," of the Standard Specifications is amended to read:

#### **90-5.03A PROPORTIONING FOR PAVEMENT**

- Aggregates and bulk cement, mineral admixture, and cement plus mineral admixture for use in pavement shall be proportioned by mass by means of automatic proportioning devices of approved type conforming to the provisions in this Section 90-5.03A.
- The Contractor shall install and maintain in operating condition an electrically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by mass of the fine aggregate.
- The batching of cement, mineral admixture, or cement plus mineral admixture and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and mineral admixture hoppers or the cement plus mineral admixture hopper are charged with masses which are within the tolerances specified in Section 90-5.02, "Proportioning Devices."
- The discharge gate on the cement and mineral admixture hoppers or the cement plus mineral admixture hopper shall be designed to permit regulating the flow of cement, mineral admixture or cement plus mineral admixture into the aggregate as directed by the Engineer.
- When separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.
- Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and that the weigh box cannot be tripped until the required quantity from each of the several bins has been deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.
- When the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required mass is discharged into the weigh box, after which the gate shall automatically close and lock.
- The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

The third paragraph in Section 90-6.01, "General," of the Standard Specifications is amended to read:

- Concrete shall be homogeneous and thoroughly mixed. There shall be no lumps or evidence of undispersed cement, mineral admixture, or cement plus mineral admixture.

The third and fourth paragraphs in Section 90-6.02, "Machine Mixing," of the Standard Specifications are amended to read:

- The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first one-fourth of the specified mixing time.
- Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, or in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cementitious material in the concrete mixture.

The sixth paragraph in Section 90-6.02, "Machine Mixing," of the Standard Specifications is amended to read:

- The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.

The seventh through tenth paragraphs in Section 90-6.03, "Transporting Mixed Concrete," of the Standard Specifications are amended to read:

- When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours, or before 250 revolutions of the drum or blades, whichever comes first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 30°C, or above, a time less than 1.5 hours may be required.
- When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 30°C, or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.
- Each load of concrete delivered at the job site shall be accompanied by a weight certificate showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water added to the load and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This weight certificate shall also show the actual scale masses (kilograms) for the ingredients batched. Theoretical or target batch masses shall not be used as a substitute for actual scale masses.
- Weight certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on 90 mm diskette with a capacity of at least 1.4 megabytes. Captured data, for the ingredients represented by each batch shall be LFCR (one line, separate record) with allowances for sufficient fields to satisfy the amount of data required by these specifications.
- The Contractor may furnish a weight certificate that is accompanied by a separate certificate which lists the actual batch masses or measurements for a load of concrete provided that both certificates are 1) imprinted with the same non-repeating load number that is unique to the contract and 2) delivered to the job site with the load.
- Weight certificates furnished by the Contractor shall conform to the provisions in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications.

Section 90-6.05, "Hand-Mixing," of the Standard Specifications is amended to read:

#### **90-6.05 HAND-MIXING**

- Hand-mixed concrete shall be made in batches not more than one-fourth cubic meter and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than 0.3 meters in total depth. On this mixture shall be spread the dry cement and mineral admixture and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass again turned no fewer than 3 times, not including placing in the carriers or forms.

The table in the first paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is replaced with the following table:

| Type of Work                       | Nominal Penetration<br>(mm) | Maximum Penetration<br>(mm) |
|------------------------------------|-----------------------------|-----------------------------|
| Concrete pavement                  | 0-25                        | 40                          |
| Non-reinforced concrete facilities | 0-35                        | 50                          |
| Reinforced concrete structures:    |                             |                             |
| Sections over 300 mm thick         | 0-35                        | 65                          |
| Sections 300 mm thick or less      | 0-50                        | 75                          |
| Concrete placed under water        | 75-100                      | 115                         |
| Cast-in-place concrete piles       | 65-90                       | 100                         |

The first paragraph following the table of penetration ranges in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

- The amount of free water used in concrete shall not exceed 183 kg/m<sup>3</sup>, plus 20 kg for each required 100 kg of cementitious material in excess of 325 kg/m<sup>3</sup>.

The fourth paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

- Where there are adverse or difficult conditions which affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic meter of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 kg of water per added 100 kg of cementitious material per cubic meter. The cost of additional cementitious material and water added under these conditions shall be at the Contractor's expense and no additional compensation will be allowed therefor.

Section 90-9.01, "General," of the Standard Specifications is amended to read:

#### **90-9.01 GENERAL**

- Concrete compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified in these specifications or are shown on the plans.

- The compressive strength of concrete will be determined from test cylinders which have been fabricated from concrete sampled in conformance with California Test 539. Test cylinders will be molded and initial field cured in conformance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in conformance with California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

- When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in conformance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.

- When concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall, at the Contractor's expense, make corrective changes, subject to approval by the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State \$14 for each in-place cubic meter of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State \$20 for each in place cubic meter of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. Concrete represented by a single test which indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials."

- If the test result indicates that the compressive strength at the maximum curing age specified or allowed is below the specified strength, but 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum curing age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in conformance with the requirements in ASTM Designation: C 42.

- No single compressive strength test shall represent more than 250 cubic meters.

- When a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders which have been handled and stored in conformance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. When the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.

- If concrete is specified by compressive strength, then materials, mix proportions, mixing equipment, and procedures proposed for use shall be prequalified prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

- Certified test data, in order to be acceptable, must indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of cure days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

- Trial batch test reports, in order to be acceptable, must indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 4 MPa greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches which were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

- Tests shall be performed in conformance with either the appropriate California Test methods or the comparable ASTM test methods. Equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

- The certified test data and trial batch test reports shall include the following information:

- A. Date of mixing.
- B. Mixing equipment and procedures used.
- C. The size of batch in cubic meters and the mass, type and source of ingredients used.
- D. Penetration of the concrete.
- E. The air content of the concrete if an air-entraining admixture is used.
- F. The age at time of testing and strength of concrete cylinders tested.

- Certified test data and trial batch test reports shall be signed by an official of the firm which performed the tests.

- When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type or class of concrete required at that location.

- After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making changes which, in the judgment of the Engineer, could result in a lowering of the strength of the concrete below that specified.

- The Contractor's attention is directed to the time required to test trial batches. The Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

- When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

Section 90-10.02A, "Portland Cement," of the Standard Specifications is renamed "Cementitious Material" and is amended to read:

#### **90-10.02A CEMENTITIOUS MATERIAL**

- Cementitious material shall conform to the provisions in Section 90-1.01, "Description." Compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified in these specifications or are shown on the plans.

The fifth paragraph in Section 90-10.02B, "Aggregate," of the Standard Specifications is deleted.

Section 90-10.03, "Production," of the Standard Specifications is amended to read:

#### **90-10.03 PRODUCTION**

- Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice, which will result in concrete that is thoroughly and uniformly mixed, which is suitable for the use intended, and which conforms to provisions specified herein. Recognized

standards of good practice are outlined in various industry publications such as those issued by American Concrete Institute, AASHTO, or California Department of Transportation.

- The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."

- The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6.06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer.

- Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 32°C will be considered as conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.

- The required mixing time in stationary mixers shall be not less than 50 seconds or more than 5 minutes.

- The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.

- Each load of ready-mixed concrete shall be accompanied by a weight certificate which shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The weight certificate shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.

- A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets contract requirements, including minimum cementitious material content specified.

The third and fourth paragraphs in Section 90-11.02, "Payment," of the Standard Specifications are amended to read:

- Should the Engineer order the Contractor to incorporate admixtures into the concrete when their use is not required by these specifications or the special provisions, furnishing the admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D.

- Should the Contractor use admixtures in conformance with the provisions in Section 90-4.05, "Optional Use of Chemical Admixtures," or Section 90-4.07, "Optional Use of Air-entraining Admixtures," or should the Contractor request and obtain permission to use other admixtures for the Contractor's benefit, the Contractor shall furnish those admixtures and incorporate them in the concrete at the Contractor's expense and no additional compensation will be allowed therefor.

## **SECTION 8-3. WELDING**

### **8-3.01 WELDING ELECTRODES**

Flux core welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform any type of welding for this project.

### **8-3.02 WELDING QUALITY CONTROL**

Welding quality control shall conform to the requirements in the AWS welding codes, the Standard Specifications, and these special provisions.

Welding quality control shall apply when any work is welded in conformance with the provisions in Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," Section 56-1, "Overhead Sign Structures," Section 75-1.035, "Bridge Joint Restrainer Units," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans or in these special provisions, the year of adoption for these codes shall be as listed:

| AWS Code           | Year of Adoption |
|--------------------|------------------|
| D1.1               | 1998             |
| D1.4               | 1992             |
| D1.5               | 1995             |
| D1.5 (metric only) | 1996             |

All requirements of the AWS welding codes shall apply unless specified otherwise in the Standard Specifications, on the plans or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or ANSI/AASHTO/AWS.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and all subcontractors.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, and approving all correspondence, required submittals, and reports to and from the Engineer.

The QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

Welding inspection personnel or nondestructive testing (NDT) firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

- A. The welding is performed at a permanent fabrication facility which is certified under the AISC Quality Certification Program, Category Cbr, Major Steel Bridges.
- B. The welding is performed at a permanent fabrication facility which is certified under the AISC Quality Certification Program, Category Sbd, Conventional Steel Building Structures. This condition shall apply only for work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures" or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

For welding performed at such certified facilities, the inspection personnel or NDT firms may be employed or compensated by the fabrication facility performing the welding.

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a pre-welding meeting between the Engineer, Contractor and any welding subcontractors or entities hired by these subcontractors to be used in the work, shall be held to discuss the requirements for the WQCP.

Prior to performing any welding, the Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 3 copies of a separate WQCP for each item of work for which welding is to be performed. As a minimum, each WQCP shall include the following:

- A. The name of the welding firm and the NDT firm to be used;
- B. A manual prepared by the NDT firm that shall include equipment, testing procedures, code of safe practices, the Written Practice of the NDT firm, and the names, qualifications and documentation of certifications for all personnel to be used;
- C. The name of the QCM and the names, qualifications and documentation of certifications for all Quality Control (QC) Inspectors and Assistant Quality Control Inspectors to be used;
- D. An organizational chart showing all QC personnel and their assigned QC responsibilities;
- E. The methods and frequencies for performing all required quality control procedures, including QC inspection forms to be used, as required by the specifications including:
  - 1. all visual inspections;
  - 2. all NDT including radiographic geometry, penetrometer and shim selection, film quality, film processing, radiograph identification and marking system, and film interpretation and reports; and
  - 3. calibration procedures and calibration frequency for all NDT equipment;
- F. A system for the identification and tracking of all welds, NDT and any required repairs, and a procedure for the reinspection of any repaired welds. The system shall have provisions for 1) permanently identifying each weld and the person who performed the weld, 2) placing all identification and tracking information on each radiograph and 3) a method of reporting nonconforming welds to the Engineer;
- G. Standard procedures for performing noncritical repair welds. Noncritical repair welds are defined as welds to deposit additional weld beads or layers to compensate for insufficient weld size and to fill limited excavations that were performed to remove unacceptable edge or surface discontinuities, rollover or undercut. The depth of these excavations shall not exceed 65 percent of the specified weld size;
- H. The welding procedure specification (WPS), including documentation of all supporting Procedure Qualification Record (PQR) tests performed, and the name of the testing laboratory who performed the tests, to verify the acceptability of the WPS. The submitted WPS shall be within the allowable period of effectiveness;



- I. Documentation of all certifications for welders for each weld process and position that will be used. Certifications shall list the electrodes used, test position, base metal and thickness, tests performed, and the witnessing authority. All certifications shall be within the allowable period of effectiveness; and
- J. One copy each of all AWS welding codes and the FCP which are applicable to the welding to be performed. These codes and the FCP shall become the permanent property of the Department.
- K. Example forms to be used for Certificates of Compliance, daily production logs, and daily reports.

The Engineer shall have 10 working days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the WQCP, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

An amended WQCP or addendum shall be submitted to, and approved in writing by the Engineer, for any proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for any revisions to the WQCP, including but not limited to a revised WPS, additional welders, changes in NDT firms or procedures, QC or NDT personnel, or updated systems for tracking and identifying welds. The Engineer shall have 3 working days to complete the review of the amended WQCP or addendum. Work that is affected by any of the proposed revisions shall not be performed until the amended WQCP or addendum has been approved. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the amended WQCP or addendum, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of each of these approved documents.

It is expressly understood that the Engineer's approval of the Contractor's WQCP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the requirements of the plans and specifications. The Engineer's approval shall not constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder, and defective work, materials and equipment may be rejected notwithstanding approval of the WQCP.

A daily production log for welding shall be kept by the QCM for each day that welding is performed. The log shall clearly indicate the locations of all welding, and shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each Quality Control Inspector shall also be included in the log.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 7 days following the performance of any welding:

- A. Reports of all visual weld inspections and NDT;
- B. Radiographs and radiographic reports, and other required NDT reports;
- C. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests, corrected all rejectable deficiencies, and all repaired welds have been reexamined by the required NDT and found acceptable; and
- D. Daily production log.

All radiographic envelopes shall have clearly written on the outside of the envelope the following information: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers or a report number, as detailed in the WQCP. In addition, all innerleaves shall have clearly written on them the part description and all included weld numbers, as detailed in the WQCP.

All reports regarding NDT, including radiographs, shall be signed by both the NDT technician and the person that performed the review, and then submitted directly to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures.

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for steel piling, the Engineer shall be allowed 7 days to review the report and respond in writing after a complete Welding Report has been received. The review time for steel piling shall be as specified in "Piling" of these special provisions. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover any welds for which a Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover any welds pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling

operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Sections 6.1.2 through 6.1.4.3 of AWS D 1.1, Sections 7.1.1 and 7.1.2 of AWS D 1.4, and Sections 6.1.1.1 through 6.1.3.3 of AWS D 1.5 are replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing prior to welding, during welding and after welding as specified in this section and additionally as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

The Quality Control (QC) Inspector shall be the duly designated person who performs inspection, testing, and quality matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

All QC Inspectors shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as AWS Certified Welding Inspectors (CWI) in conformance with the requirements in AWS QC1, "Standard and Guide for Qualification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in conformance with the requirements in AWS QC1, "Standard and Guide for Qualification of Welding Inspectors," or has equivalent qualifications. The QC Inspector shall monitor the Assistant QC Inspector's work, and shall be responsible for signing all reports.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

Section 6.14.6, "Personnel Qualification," of AWS D 1.1, Section 7.7.6, "Personnel Qualification," of AWS D 1.4, and Section 6.1.3.4, "Personnel Qualification," of AWS D 1.5 are replaced with the following:

Personnel performing NDT shall be qualified in conformance with the requirements in the current edition of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the requirements of the current edition of the ASNT Recommended Practice No. SNT-TC-1A. Only individuals who are 1) qualified for NDT Level II, or 2) Level III technicians who have been directly certified by the ASNT and are authorized to perform the work of Level II technicians, shall perform NDT, review the results, and prepare the written reports.

Section 6.5.4, "Scope of Examination," of AWS D 1.1 and Section 7.5.4 of AWS D 1.4 are replaced with the following:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met.

Section 6.5.4 of AWS D 1.5 is replaced with the following:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met. The QC Inspector shall examine the work to make certain that it meets the requirements of section 3 and 9.21. The size and contour of welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities should be aided by strong light magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, Quality Control Inspector, or NDT personnel to specified levels by retests or other means.

A sufficient number of QC Inspectors shall be provided to ensure continuous inspection when any welding is being performed. Continuous inspection, as a minimum, shall include (1) having QC Inspectors continually present on all shifts when any welding is being performed, or (2) having a QC Inspector within such close proximity of all welding operations that inspections by the QC Inspector of each operation, at each welding location, shall not lapse for a period exceeding 30 minutes.

Inspection and approval of the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day that welding is performed.

The QC Inspector shall provide reports to the QCM on a daily basis for each day that welding is performed.

Except for noncritical weld repairs, base metal repairs, or any other type of repairs not submitted in the WQCP, the Engineer shall be notified immediately in writing when any welding problems or deficiencies are discovered and also of the proposed repair procedures to correct them. The Engineer shall have 5 working days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the proposed repair procedures, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

When joint details that are not prequalified by the applicable AWS codes are proposed for use in the work, all welders using these details shall perform a qualification test plate using the approved WPS variables and the joint detail to be used in production. The test plate shall be the maximum thickness to be used in production. The test plate shall be mechanically or radiographically tested as directed by the Engineer. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. A valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's work remains satisfactory.

All qualification tests for welders, welding operators, and WPSs used in welding operations will be witnessed by the Engineer.

Section 6.6.5, "Nonspecified Nondestructive Testing Other Than Visual," of AWS D 1.1, Section 6.6.5 of AWS D 1.4 and Section 6.6.5 of AWS D 1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS welding codes, in the Standard Specifications or in these special provisions. Additional NDT required by the Engineer, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Should any welding deficiencies be discovered by this additional NDT, the cost of the testing will not be paid for as extra work and shall be at the Contractor's expense.

All required repair work to correct welding deficiencies, whether discovered by the required visual inspection or NDT, or by additional NDT directed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

At the completion of all welding, the QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans and the provisions of the Standard Specifications and these special provisions.

Full compensation for conforming to the requirements of this section shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

## **SECTION 9. (BLANK)**

## **SECTION 10. CONSTRUCTION DETAILS**

### **SECTION 10-1. GENERAL**

#### **10-1.01 ORDER OF WORK**

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

Attention is directed to Environmentally Sensitive Area (ESA) and Temporary Fence (Type ESA) as specified in these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of Temporary Fence (Type ESA).

Attention is directed to "Aerially Deposited Lead, General", and "Material with Aerially Deposited Lead" elsewhere in these special provisions.

The first order of work is to excavate, load, transport, place, and compact roadway excavation (Type Y) as shown on the plans, as specified in the special provisions, and as directed by the Engineer.

The Contractor shall notify the Engineer a minimum of seven calendar days prior to beginning work in Napa Creek.

Attention is directed to "Temporary Creek Diversion System" of these special provisions. The Napa Creek impoundment berm shall be constructed and in place prior to beginning excavation for any portion of the 1050-mm alternative pipe culvert system. Use of the temporary creek diversion system is restricted to the period from June 1 to October 1.

Any concrete pour within 20 meters of the 1050-mm alternative pipe culvert outfall shall be performed prior to September 1.

Attention is directed to "Erosion Control (Type D)" of these special provisions regarding the time requirements for application of erosion control materials.

Not less than 40 calendar days prior to planting the plants, the Contractor shall furnish the Engineer a statement from the vendor that the order for the plants required for this contract, including inspection plants, has been received and accepted by the vendor. The statement from the vendor shall include the names, sizes, and quantities of plants ordered and the anticipated date of delivery.

The Contractor shall place orders for replacement plants with the vendor at the appropriate time so that the roots of the replacement plants are not in a root-bound condition.

Not less than 60 days prior to applying seeds, the Contractor shall furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor shall include the names and quantity of seed ordered and the anticipated date of delivery.

Attention is directed to "Plant (Group I) and Plant (Group M)" of these special provisions regarding the time restraints specified for planting seedlings.

Attention is directed to "Willow Cuttings Plant (Group W) and Willow Wattles Plant (Group Wa)" of these special provisions regarding the time restraints specified for planting willow cuttings.

#### **10-1.02 WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN)**

Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications and these special provisions.

This project lies within the boundaries of the San Francisco Bay Regional Water Quality Control Board and shall conform to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for General Construction Activities No. CAS000002, Order No. 99-08-DWQ, and the NPDES Permit for the State of California Department of Transportation Properties, Facilities, and Activities, No. CAS000003, Order No. 99-06-DWQ issued by the State Water Resources Control Board. These permits, hereafter referred to as the "Permits," regulate storm water discharges associated with construction activities.

Water pollution control work shall conform to the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and the "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to, and including, the date of advertisement of the project, hereafter referred to respectively as the "Preparation Manual" and the "Construction Site BMP Manual" and collectively as the "Manuals." Copies of the Manuals and the Permits may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445-3520. Copies of the Manuals may also be obtained from the Department's Internet Web Site at: <http://www.dot.ca.gov/hq/construc/stormwater.html>.

In addition, a Conceptual Storm Water Pollution Prevention Plan (CSWPPP) has been prepared for this project by the Department and is available for review at 111 Grand Avenue, Oakland, California 94612. Please call the Construction Duty Senior, telephone number (510) 286-5209 to reserve a copy of the documents at least 24 hours in advance.. This document may be used by the Contractor for developing the actual contract Storm Water Pollution Prevention Plan (SWPPP).

The Contractor shall know and fully comply with the applicable provisions of the Manuals, Permits, and Federal, State, and local regulations that govern the Contractor's operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction. The Contractor shall maintain copies of the Permits at the project site and shall make the Permits available during construction.

Unless arrangements for disturbance or use of areas outside the project limits are made by the Department and made part of the contract, it is expressly agreed that the Department assumes no responsibility for the Contractor or property owner with respect to any arrangements made between the Contractor and property owner. The Contractor shall implement, inspect and maintain all necessary water pollution control practices to satisfy all applicable Federal, State, and Local laws and regulations that govern water quality for areas used outside of the highway right-of-way or areas arranged for the specific use of the Contractor for this project. Installing, inspecting, and maintaining water pollution control practices on areas outside the highway right-of-way not specifically arranged for and provided for by the Department for the execution of this contract will not be paid for.

The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the provisions set forth in this section "Water Pollution Control", including but not limited to, compliance with the applicable provisions of the Manuals, Permits and Federal, State and local regulations. Costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the State or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

In addition to the remedies authorized by law, money due the Contractor under the contract, in an amount determined by the Department, may be retained by the State of California until disposition has been made of the costs and liabilities.

When a regulatory agency or other third party identifies a failure to comply with the permit or any other local, State, or federal requirement, the Engineer may retain money due the Contractor, subject to the following:

- A. The Department will give the Contractor 30 days notice of the Department's intention to retain funds from partial payments which may become due to the Contractor prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.
- B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications.
- C. If the Department has retained funds and it is subsequently determined that the State is not subject to the costs and liabilities in connection with the matter for which the retention was made, the Department shall be liable for interest on the amount retained for the period of the retention, and the rate of interest payable shall be 6 percent per annum.

Conformance with the provisions of this section "Water Pollution Control" shall not relieve the Contractor from the Contractor's responsibilities, as provided in Section 7, "Legal Relations and Responsibilities," of the Standard Specifications.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records pertaining to water pollution control work.

### **STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL AND AMENDMENTS**

As part of the water pollution control work, a Storm Water Pollution Prevention Plan, hereafter referred to as the "SWPPP," is required for this contract. The SWPPP shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Manuals, the requirements of the Permits, and these special provisions. Upon the Engineer's approval of the SWPPP, the SWPPP shall be considered to fulfill the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications for development and submittal of a Water Pollution Control Program.

No work having potential to cause water pollution, as determined by the Engineer, shall be performed until the SWPPP has been approved by the Engineer.

The Contractor shall designate a Water Pollution Control Manager. The Water Pollution Control Manager shall be responsible for the preparation of the SWPPP and any required modifications or amendments and shall be responsible for the implementation and adequate functioning of the various water pollution control practices employed. The Water Pollution Control Manager shall serve as the primary contact for all issues related to the SWPPP or its implementation. The Contractor shall submit to the Engineer a statement of qualifications, describing the training, previous work history and expertise of the individual selected by the Contractor to serve as Water Pollution Control Manager. The Engineer will reject the Contractor's submission of a Water Pollution Control Manager if the submitted qualifications are deemed to be inadequate.

Within 15 days after the approval of the contract, the Contractor shall submit 3 copies of the draft SWPPP to the Engineer. The Engineer will have 7 days to review the SWPPP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the SWPPP within 4 days of receipt of the Engineer's comments. The Engineer will have 4 days to review the revisions. Upon the Engineer's approval of the SWPPP, 3 approved copies of the SWPPP, incorporating the required changes, shall be submitted to the Engineer. In order to allow construction activities to proceed, the Engineer may conditionally approve the SWPPP while minor revisions are being completed. If the Engineer does not review or approve the SWPPP within the time specified, compensation will be made in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The SWPPP shall apply to all areas that are directly related to construction including, but not limited to, staging areas, storage yards, material borrow areas, and access roads within or outside of the highway right-of-way.

The SWPPP shall incorporate water pollution control practices in the following six categories:

- A. Soil stabilization;
- B. Sediment control;
- C. Wind erosion control;
- D. Tracking control;
- E. Non-storm water control; and
- F. Waste management and material pollution control.

The Contractor shall develop a Water Pollution Control Schedule that shall describe the timing of grading or other work activities that could affect water pollution. The Water Pollution Control Schedule shall be updated by the Contractor to reflect any changes in the Contractor's operations that would affect the necessary implementation of water pollution control practices.

The Contractor shall incorporate the "Minimum Requirements" presented in the Preparation Manual into the SWPPP. In addition to the "Minimum Requirements" presented in the Preparation Manual, the Contractor shall complete the BMP Consideration Checklist presented in the Preparation Manual. The Contractor shall identify and incorporate into the SWPPP the water pollution control practices selected by the Contractor or as directed by the Engineer.

In addition to the Minimum Requirements presented in the Preparation Manual, special requirements shall be incorporated into the SWPPP and the Water Pollution Control Cost Break-Down as follows:

### **Special Requirement(s)**

| Category  | BMP, location and quantity  |
|---|---|
| <b>Soil Stabilization Practices</b>                       | CD22 Scheduling,<br>CD23 Preservation of Existing Vegetation  |
| <b>Sediment Control Practices</b>                         | CD40 Storm Drain Inlet Protection   |
| <b>Waste Management &amp; Materials Pollution Control</b> | CD10 Material Delivery & Storage,<br>CD12 Spill Prevention and Control,<br>CD13 Solid Waste Management,<br>CD17 Sanitary/Septic Waste Management,<br>CD18 Vehicle and Equipment Cleaning,<br>CD19 Vehicle and Equipment Fueling,<br>CD20 Vehicle and Equipment Maintenance,<br>CD44 Illicit Discharge/Illegal Dumping Reporting |

The following contract items of work, shall be incorporated into the SWPPP as "Temporary Water Pollution Control Practices": Temporary Cover, Temporary Entrance/Exits, Temporary Fence (Type ESA), Temporary Creek Diversion System, and Temporary Concrete Washout Facility. The Contractor's attention is directed to these special provisions provided for each temporary water pollution control practice.

The following contract items of work, as shown on the project plans or as specified elsewhere in these special provisions, shall be identified in the SWPPP as permanent water pollution control practices: Erosion Control (Type D), Erosion Control (Blanket), Fiber Rolls, and Rock Slope Protection. These permanent water pollution control practices shall be constructed as soon as grading in each area has been completed, and utilized during the construction period. The Contractor shall maintain and protect the permanent water pollution control practices throughout the duration of the project and shall restore these controls to the lines, grades and condition shown on the plans prior to acceptance of the contract.

The SWPPP shall include, but not be limited to, the items described in the Manuals, Permits and related information contained in the contract documents. In addition the SWPPP shall include a copy of the following: the Notice of Construction (NOC) submitted by the Department for this project.

The Contractor shall prepare an amendment to the SWPPP when there is a change in construction activities or operations which may affect the discharge of pollutants to surface waters, ground waters, municipal storm drain systems, or when the Contractor's activities or operations violate any condition of the Permits, or when directed by the Engineer. Amendments shall show additional water pollution control practices or revised operations, including those areas or operations not shown in the initially approved SWPPP. Amendments to the SWPPP shall be prepared, and submitted for review and approval in the same manner as specified for the SWPPP approval. Subsequent amendments shall be submitted within a time approved by the Engineer, but in no case longer than the time specified for the initial submittal and review of the SWPPP. At a minimum, the SWPPP shall be amended annually and submitted to the Engineer 25 days prior to the defined rainy season.

The Contractor shall keep one copy of the approved SWPPP and approved amendments at the project site. The SWPPP shall be made available upon request of a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency or the local storm water management agency. Requests by the public shall be directed to the Engineer.

### **COST BREAK-DOWN**

The Contractor shall submit to the Engineer a cost break-down for the contract lump sum item of water pollution control, together with the SWPPP.

The cost break-down shall be completed and furnished in the format shown in the example of the cost break-down included in this section. Unit descriptions and quantities shall be designated by the Contractor, except for the specified special requirements shown in the example. The units and quantities given in the example, if provided, are special requirements specified for the SWPPP, and shall be included in the cost break-down furnished to the Engineer. The Contractor shall verify the estimated quantities of the special requirements and submit revised quantities in the cost break-down.

The Contractor shall determine the quantities required to complete the work of water pollution control. The quantities and their values shall be included in the cost break-down submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval. The cost break-down shall not include water pollution control practices which are shown on the plans and for which there is a separate contract item.

The sum of the amounts for the units of work listed in the cost break-down shall be equal to the contract lump sum price bid for water pollution control. Overhead and profit shall be included in each individual unit listed in the cost break-down. The cost break-down shall be submitted and approved within the same times specified for the SWPPP. Partial payment for the item of water pollution control will not be made until the cost break-down is approved, in writing, by the Engineer.

Adjustments in the items of work and quantities listed in the approved cost break-down shall be made when required to address amendments to the SWPPP, except when the adjusted items are paid for as extra work.

No adjustment in compensation will be made in the contract lump sum price paid for water pollution control due to differences between the quantities shown in the approved cost break-down and the quantities required to complete the work as shown on the approved SWPPP. No adjustment in compensation will be made for ordered changes to correct SWPPP work resulting from the Contractor's own operations or from the Contractor's negligence.

The approved cost break-down will be used to determine partial payments during the progress of the work and as the basis for calculating the adjustment in compensation for the item of water pollution control due to increases or decreases of quantities ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down item, the adjustment in compensation will be determined in the same manner specified for increases and decreases in the quantity of a contract item of work in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications. If an ordered change requires a new item not on the approved cost break-down, the adjustment in compensation will be determined in the same manner specified for extra work in conformance with Section 4-1.03D, "Extra Work," of the Standard Specifications.

If requested by the Contractor and approved by the Engineer, changes to the water pollution control practices listed in the approved cost break-down, including the addition of new water pollution control practices, will be allowed. The changes shall be included in an approved amendment to the SWPPP. If the changes to the water pollution control practices requested by the Contractor would result in a net cost increase to the lump sum price for water pollution control, an adjustment in compensation will be made without change to the item of water pollution control. The net cost increase to the item of water pollution control resulting from changes requested by the Contractor will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

## WATER POLLUTION CONTROL COST BREAK-DOWN

**Contract No. 04-120624**

| UNIT DESCRIPTION                                 | UNIT | APPROXIMATE<br>QUANTITY | VALUE | AMOUNT |
|--|------|-------------------------|-------|--------|
| CD7 Dewatering                                   | LS   | Lump Sum                |       |        |
| CD10 Material Delivery & Storage                 | LS   | Lump Sum                |       |        |
| CD11 Material Use                                | LS   | Lump Sum                |       |        |
| CD12 Spill Prevention and Control                | LS   | Lump Sum                |       |        |
| CD13 Solid Waste Management                      | LS   | Lump Sum                |       |        |
| CD18 Vehicle and Equipment Cleaning              | LS   | Lump Sum                |       |        |
| CD19 Vehicle and Equipment Fueling               | LS   | Lump Sum                |       |        |
| CD20 Vehicle and Equipment Maintenance           | LS   | Lump Sum                |       |        |
| CD22 Scheduling                                  | LS   | Lump Sum                |       |        |
| CD23 Preservation of Existing Vegetation         | LS   | Lump Sum                |       |        |
| CD44 Illicit Discharge/Illegal Dumping Reporting | LS   | Lump Sum                |       |        |
| Roadway Sweeping                                 | LS   | Lump Sum                |       |        |

**TOTAL** \_\_\_\_\_



## **SWPPP IMPLEMENTATION**

Upon approval of the SWPPP, the Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, maintaining, removing and disposing of the water pollution control practices included in the SWPPP and any amendments. Unless otherwise directed by the Engineer, the Contractor's responsibility for SWPPP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. Requirements for installation, construction, inspection, maintenance, removal, and disposal of water pollution control practices are specified in the Manuals and these special provisions.

If the Contractor or the Engineer identifies a deficiency in any aspect of the implementation of the approved SWPPP or amendments, the deficiency shall be corrected immediately. The deficiency may be corrected at a later date and time if requested by the Contractor and approved by the Engineer in writing, but not later than the onset of precipitation. If the Contractor fails to correct the identified deficiency by the date agreed or prior to the onset of precipitation the project shall be in noncompliance. Attention is directed to Section 5-1.01, "Authority of the Engineer," of the Standard Specifications and the payment sections of these special provisions for possible noncompliance penalties.

If the Contractor fails to conform to the provisions of "Water Pollution Control," the Engineer may order the suspension of construction operations which create water pollution.

Implementation of water pollution control practices may vary by season. The Construction Site BMP Manual and these special provisions shall be followed for control practice selection of year round, rainy season and non-rainy season water pollution control practices.

### **Year-Round Implementation Requirements**

The Contractor shall have a year-round program for implementing, inspecting and maintaining water pollution control practices for wind erosion control, tracking control, non-storm water control, and waste management and materials pollution control.

The National Weather Service weather forecast shall be monitored and used by the Contractor on a daily basis. An alternative weather forecast proposed by the Contractor may be used if approved by the Engineer. If precipitation is predicted, the necessary water pollution control practices shall be deployed prior to the onset of the precipitation.

Disturbed soil areas shall be considered active whenever the soil disturbing activities have occurred, continue to occur or will occur during the ensuing 21 days. Non-active areas shall be protected as prescribed in the Construction Site BMP Manual within 14 days of cessation of soil disturbing activities or prior to the onset of precipitation, whichever occurs first.

### **Rainy Season Requirements**

Soil stabilization and sediment control practices conforming to the requirements in the Special Requirements and applicable Preparation Manual Minimum Requirements, shall be provided throughout the rainy season, defined as between October 1st and May 1st.

An implementation schedule of required soil stabilization and sediment control practices for disturbed soil areas shall be completed not later than 20 days prior to the beginning of each rainy season. The implementation schedule shall identify the soil stabilization and sediment control practices to be implemented and the dates on which the implementation will be 25 percent, 50 percent and 100 percent complete, respectively. Construction activities beginning during the rainy season shall implement applicable soil stabilization and sediment control practices.

Throughout the defined rainy season, the active disturbed soil area of the project site shall be not more than 1.0 hectares. The Engineer may approve, on a case-by-case basis, expansions of the active disturbed soil area limit. Soil stabilization and sediment control materials shall be maintained on site sufficient to protect the unprotected disturbed soil area. A detailed plan for the mobilization of sufficient labor and equipment shall be maintained to deploy the water pollution control practices required to protect the project site prior to the onset of precipitation events.

### **Non-Rainy Season Requirements**

The non-rainy season shall be defined as all days outside the defined rainy season. The Contractor's attention is directed to the Construction Site BMP Manual for soil stabilization and sediment control implementation requirements on disturbed soil areas during the non-rainy season. Disturbed soil areas within the project shall be protected in conformance with the requirements in the Construction Site BMP Manual with an effective combination of soil stabilization and sediment control.

## **MAINTENANCE**

To ensure the proper implementation and functioning of water pollution control practices, the Contractor shall regularly inspect and maintain the construction site for the water pollution control practices identified in the SWPPP. The construction site shall be inspected by the Contractor as follows:

- A. Prior to a forecast storm;
- B. After a precipitation event which causes site runoff;
- C. At 24 hour intervals during extended precipitation events;
- D. Routinely, a minimum of once every 2 weeks outside of the defined rainy season;
- E. Routinely, a minimum of week during the defined rainy season.

The Contractor shall use the Storm Water Quality Construction Site Inspection Checklist provided in the CSWPPP or an alternative inspection checklist provided by the Engineer. One copy of each site inspection record shall be submitted to the Engineer within 24 hours of completing the inspection.

## **REPORTING REQUIREMENTS**

### **Report of Discharges, Notices or Orders**

If the Contractor identifies any discharge into receiving waters in a manner causing, or potentially causing, a condition of pollution, or if the project receives a written notice or order from any regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor shall submit a written report to the Engineer within 3 calendar days of the discharge event, notice, or order. The report shall include the following information:

- A. The date, time, location, nature of the operation, and type of discharge, including the cause or nature of the notice or order.
- B. The water pollution control practices deployed before the discharge event, or prior to receiving the notice or order.
- C. The date of deployment and type of water pollution control practices deployed after the discharge event, or after receiving the notice, or order, including additional measures installed or planned to reduce or prevent reoccurrence.
- D. An implementation and maintenance schedule for any affected water pollution control practices.

### **Report of First-Time Non-Storm Water Discharge**

The Contractor shall notify the Engineer at least 3 working days in advance of each first-time non-storm water discharge event, excluding exempted discharges. The Contractor shall notify the Engineer of each different operation causing a non-storm water discharge and shall obtain field approval for each first-time non-storm water discharge. Non-storm water discharges shall be monitored at each first-time occurrence and routinely thereafter.

### **Annual Certifications**

By June 15 of each year, the Contractor shall complete and submit an Annual Construction Activity Certification as contained in the Preparation Manual to the Engineer.

## **PAYMENT**

The contract lump sum price paid for prepare storm water pollution prevention plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in developing, preparing, obtaining approval of, revising, and amending the SWPPP, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Attention is directed to Section 9-1.06, "Partial Payments," and Section 9-1.07, "Payment After Acceptance," of the Standard Specifications. Payments for prepare storm water pollution prevention plan will be made as follows:

- A. After the SWPPP has been approved by the Engineer, 75 percent of the contract item price for prepare storm water pollution prevention plan will be included in the monthly partial payment estimate; and
- B. After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, payment for the remaining 25 percent of the contract item price for prepare storm water pollution prevention plan will be made in conformance with the provisions in Section 9-1.07.

The contract lump sum price paid for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing, constructing, removing, and disposing of water pollution control practices, including non-storm water and waste management and materials pollution water pollution control practices except those shown on the plans and for which there is a contract item of work, and excluding developing, preparing, obtaining approval of, revising, and amending the SWPPP, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The cost of maintaining the temporary water pollution control practices shall be divided equally by the State and the Contractor as follows:

**Soil Stabilization**

All temporary water pollution control practices except:  
SS-1 Scheduling  
SS-2 Preservation of Existing Vegetation

**Sediment Control**

All temporary water pollution control practices.

**Tracking Control**

All temporary water pollution control practices except:  
SC-7 Street Sweeping and Vacuuming

**Wind Erosion Control**

All temporary water pollution control practices.

**Non-Storm Water Control**

No sharing of maintenance costs will be allowed.

**Waste Management & Material Control**

No sharing of maintenance costs will be allowed.

The division of cost will be made by determining the cost of maintaining temporary water pollution control practices in conformance with the provisions in Section 9-1.03, "Force Account Payment," of the Standard Specifications and paying to the Contractor one-half of that cost. Clean-up, repair, removal, disposal, improper installation, and replacement of temporary water pollution control practices damaged by the Contractor's negligence shall not be considered as included in the cost for performing maintenance and no additional compensation will be allowed therefor.

The provisions for sharing maintenance costs shall not relieve the Contractor from the responsibility for providing appropriate maintenance on those items where maintenance costs are not shared.

Full compensation for maintenance costs of water pollution control practices not shared, as specified in these special provisions, shall be considered as included in the contract lump sum price paid for water pollution control and no additional compensation will be allowed therefor.

Those water pollution control practices which are shown on the plans and for which there is a contract item of work will be measured and paid for as that contract item of work.

The Engineer will retain an amount equal to 25 percent of the estimated value of the contract work performed during estimate periods in which the Contractor fails to conform to the provisions of this section "Water Pollution Control," as determined by the Engineer.

Retention for failure to conform to the provisions in this section "Water Pollution Control" shall be in addition to the other retention provided for in the contract. The amounts retained for failure of the Contractor to conform to the provisions in this section will be released for payment on the next monthly estimate for partial payment following the date that an approved SWPPP has been implemented and maintained, and water pollution is adequately controlled, as determined by the Engineer.

**10-1.03 TEMPORARY FENCE (TYPE ESA)**

Temporary fence (Type ESA) shall be furnished, constructed, maintained, and later removed as shown on the plans, as specified in these special provisions and as directed by the Engineer.

Temporary fence (Type ESA) shall be constructed prior to any clearing and grubbing work and a sufficient distance from protected plants to enclose all of the foliage canopy and not encroach upon visible roots of the plants.

Temporary fence (Type ESA) shall be located so that it will be unobstructed from view by heavy equipment operators and other construction personnel.

Used materials may be installed provided the used materials are good, sound and are suitable for the purpose intended, as determined by the Engineer.

Materials may be commercial quality provided the dimensions and sizes of the materials are equal to, or greater than, the dimensions and sizes shown on the plans or specified herein. Fabric used for Temporary fence (Type ESA) shall also conform to the following:

|                     |                               |
|---------------------|-------------------------------|
| Material:           | Polypropylene or Polyethylene |
| Color:              | Orange                        |
| Mesh opening:       | 50 mm x 50 mm                 |
| UV Resistance:      | Fully Stabilized              |
| Fabric Width, min.: | 1.22 m                        |

Posts shall be either metal or wood at the Contractor's option, and shall be suitable for the purpose intended. Metal posts shall have a minimum diameter of 21.5 mm x 1600 mm in length. Wood posts shall be fir or pine and shall be a minimum of 25 mm x 50 mm x 1600 mm in length. Posts shall be driven into the soil a minimum of 400 mm. Posts shall be spaced at 2-meter centers minimum and shall at all times support the fence in a near vertical, upright position.

Galvanizing and painting of steel items will not be required.

Treating wood with a wood preservative shall not be allowed.

Concrete footings for posts will not be required.

Temporary fence (Type ESA) that is damaged during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense.

When no longer required for the work, as determined by the Engineer, temporary fence (Type ESA) shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this section.

Holes caused by the removal of temporary fence (Type ESA) shall be backfilled in conformance with the provisions in the second paragraph of Section 15-1.02, "Preservation of Property," of the Standard Specifications.

#### **MEASUREMENT AND PAYMENT**

Temporary fence (Type ESA) shall be measured in the manner specified for permanent fences in Section 80, "Fences," of the Standard Specifications.

The contract price paid per meter for temporary fence (Type ESA) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing temporary fence (Type ESA) complete in place, including installation, maintenance, removal and disposal of materials as specified in these special provisions and as directed by the Engineer.

#### **10-1.04 TEMPORARY CREEK DIVERSION SYSTEM**

Temporary creek diversion system shall be furnished and installed, maintained and later removed as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

Attention is directed to "Relations with California Department of Fish and Game" in these special provisions.

Temporary creek diversion system shall consist of a temporary diversion dam located adjacent to the rock slope protection and outfall at Napa Creek.

Temporary diversion dam shall consist of placing sand bags and plastic sheet.

#### **MATERIALS**

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications.

##### **Sand Bags**

Sand bag fabric shall be nonwoven polypropylene with a minimum unit weight of 250 g/m<sup>2</sup>. The fabric shall have a mullen burst strength of at least 2500 kPa, conforming to the requirements in ASTM Designation: D 3786 and an ultraviolet (UV) stability exceeding 70 percent at 500 hours.

Sand bags shall have a length of 600 mm to 800 mm, width of 400 mm to 500 mm, thickness of 150 mm to 200 mm, and be capable of containing a weighted mass of 13 kg to 22 kg.

Sand bag fill material shall conform to the provisions in Section 19-3.025B, "Sand Bedding," of the Standard Specifications.

The sand bags shall be filled and the opening secured such that sand shall not escape from the bag.

##### **Plastic Sheet**

Plastic sheet shall be impermeable, of commercial quality polyethylene with a minimum thickness of 0.25-mm. All joints between the edges shall be lapped and joined with commercial quality waterproof tape.

## INSTALLATION

Temporary creek diversion system shall be constructed by placing sand bags and plastic sheet as shown on the plans. All joints between the plastic sheet shall be sealed with commercial quality waterproof tape.

Use of the temporary creek diversion system is restricted to the period from June 1 to October 1. If the work requires more than one restricted period, the temporary creek diversion system shall be removed by the conclusion of the restricted period and repositioned during the following restricted period at the Contractor's expense.

The Contractor shall be responsible for preventing, at his expense, any leakage in the temporary creek diversion system that may interfere with his work.

Any portion of the temporary creek diversion system that is damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense. If during the progress of the work it becomes necessary to reposition or relocate portions of the temporary creek diversion system, the work shall be done at the Contractor's expense.

When no longer required for the work as determined by the Engineer, the temporary creek diversion system shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work.

## PAYMENT

Temporary creek diversion system will be paid for at the lump sum price for temporary creek diversion system.

The contract lump sum price paid for temporary creek diversion system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing and maintaining temporary creek diversion system, complete in place, including maintenance and removal of materials, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.05 TEMPORARY ENTRANCE/EXITS

This work shall consist of constructing and maintaining the temporary entrance/exits as shown on the plans, as directed by the Engineer, and as specified in these special provisions. When no longer required for the work, temporary entrance/exits shall be removed as specified in these special provisions.

Each temporary entrance/exits shall include a clean out sump. The minimum number of temporary entrance/exits required for this project shall be 2.

The type of temporary entrance/exits shall be either Type 1 or Type 2 at the option of the Contractor.

The Contractor shall provide as many temporary entrance/exits, as shall be required for the duration of the contract. Attention is directed to "Water Pollution Control" of these special provisions.

The Contractor shall use temporary entrance/exits as one of the various measures to prevent water pollution. The Storm Water Pollution Prevention Plan shall graphically show the use of temporary entrance/exits in relation to other water pollution control work specified elsewhere in these special provisions.

## MATERIALS

Materials shall conform the following:

### Temporary Entry/Exits Fabric.

Temporary entrance/exits fabric shall be manufactured from one or more of the following materials: polyester, nylon or polypropylene. Temporary entrance/exits fabric shall be nonwoven type fabric conforming to the following:

|  | Non-Woven Needle Punched |
|--|--------------------------|
| Mass per unit area, grams per Square Meter, Min.<br>ASTM Designation: D 5261           | 235                      |
| Grab Tensile Strength, 25 mm grip, kilo Newtons (kN), Min.<br>ASTM Designation: D4632* | 0.89                     |
| Elongation at Break, Percent, Min.,<br>ASTM Designation: D4632*                        | 50                       |
| Toughness, grab tensile strength times percent elongation<br>(kN x %)                  | 53                       |

\* or appropriate test for method for specific polymer

Temporary entrance/exits fabric shall be a non-woven, needle-punched fabric, free of any needles which may have broken off during manufacturing. It may be manufactured from either virgin polymer materials, recycled materials, or a combination of recycled and virgin polymer materials such as polyester polyethylene terephthalate 'PETE'. None of the materials, whether virgin or recycled, shall contain biodegradable filler materials that degrade the physical or chemical characteristics of the finished roll products. To confirm the absence of biodegradable filler materials the Engineer may order tests such as ASTM E 204 (Fourier Transformed Infrared Spectroscopy-FTIR) or other appropriate tests.

Temporary entrance/exits fabric shall be accompanied by a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificate of Compliance" of the Standard Specifications.

#### **Aggregate**

Aggregate shall range in size from 100 mm to 150 mm, shall be angular to subangular in shape, and shall conform to the provisions in Section 26, "Aggregate Base," of the Standard Specifications and these special provisions.

#### **Corrugated Steel Panels**

Manufactured corrugated steel panels with raised bars shall be provided in individual sections. Steel plate and raised bars shall be a minimum 12.7 mm thick. Bars shall be a minimum of 38.1 mm in height and shall be uniformly distributed 190.5 mm apart longitudinally throughout the full section of each panel. Raised bars shall be welded to the bottom plate and approximately 12.7 mm thick at the base and tapering to 6.35 mm thick at the top of the bar. Each panel shall have a nominal dimension of 3 m x 2.43 m with an approximate weight of 1454 kg for each panel. Each end of the panel shall have a slot or hooked section to facilitate coupling at the ends.

### **CONSTRUCTION**

Temporary entrance/exits shall be installed as shown on the plans and as follows:

- A. Prior to placing the temporary entrance/exits fabric, the areas shall be cleared of all trash and debris. Vegetation shall be removed to the ground level. Cleared trash, debris, and removed vegetation shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13, Disposal of Material Outside the Highway Right of Way, of the Standard Specifications.
- B. The ground to receive temporary entrance/exits fabric shall be graded to a uniform plane, watered and compacted, and shall be free of sharp objects that may damage the temporary entrance/exits fabric, and shall be graded to drain to the sump as shown on the plans.
- C. Temporary entrance/exits fabric shall be positioned longitudinally along the alignment of the temporary entrance/exits.
- D. Where needed, adjacent borders of the fabric shall be overlapped a minimum of 300 mm.
- E. Aggregate to be placed directly over the fabric shall be spread in the direction of traffic, longitudinally along the alignment of the temporary entrance/exits. All remaining materials shall be uniformly placed and spread with 1:4 (V:H) tapers at the perimeter edges of the temporary entrance/exits where it conforms to existing roadway
- F. During spreading of the aggregate, vehicles or equipment shall not be driven directly on the fabric. A minimum thickness of 150 mm of aggregate shall be maintained between the fabric and the equipment to prevent damage to the fabric. Damage to the fabric resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.
- G. Should the fabric be damaged during placing, the damaged section shall be repaired by placing a new piece of fabric over the damaged area. The piece of fabric shall be large enough to cover the damaged area and provide a minimum 450 mm overlap on all edges.

For Type 2 temporary entrance/exits, a minimum of 3 panel sections coupled to one another is required at each temporary entrance/exits. Prior to installing panels, the ground surface shall be cleared of all debris which may prevent uniform contact with the ground surface.

A sump shall be constructed within 6 m of each temporary entrance/exits. The sump shall be sized sufficiently to hold soil removed from the temporary entrance/exits in order to maintain efficiency.

### **MAINTENANCE**

The Contractor shall maintain temporary entrance/exits, throughout the contract period. The Contractor shall prevent displacement or migration of the aggregate surfacing or corrugated steel panels. Any significant depressions, as determined by the Engineer, which form due to settling or heavy traffic shall be repaired by the Contractor.

Temporary entrance/exits, shall be maintained to minimize tracking of soil and sediment onto paved roads. If the efficiency of a temporary entrance/exits to minimize tracking of soil and sediment is compromised by the buildup of soil and

sediment, or by other means, as determined by the Engineer, the Contractor shall remove and dispose of the soil and sediment, install additional corrugated steel panels, or spread additional aggregate.

Pavement cleaning shall be required at all locations where construction equipment is visibly tracking sediments onto the roadway.

Pavement cleaning shall be required each and every day when temporary entrance/exits are in use. Soil and sediment or other extraneous material tracked onto pavement shall not be allowed to enter drainage facilities and shall be removed at least once each day.

Once the temporary entrance/exits are no longer needed, the aggregate, temporary entrance/exits fabric, and any soil and sediments shall be removed and disposed of as provided for in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way" of the Standard Specifications. Following removal of the temporary entrance/exits, areas shall be graded smooth and compacted to conform with adjacent areas.

## **PAYMENT**

The contract lump sum price paid for temporary entrance/exits shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing temporary entrance/exits, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **10-1.06 ROADWAY SWEEPING**

Roadway sweeping shall be required each and every day where construction equipment is visibly tracking sediments onto the roadway. Sweeping duration and frequency each day shall be performed as required to prevent airborne dust and built up sediments in drainage swales as determined by the Engineer. The minimum frequency for roadway sweeping required for this project shall be once every 24 hours for those operations visibly tracking sediment onto paved roadway(s).

Dust resulting from the Contractor's performance of the work, either inside or outside the right of way, shall be controlled by the Contractor in conformance with the provisions in Section 7, "Legal Relations and Responsibility."

Full compensation for roadway sweeping shall be considered as included in the contract lump sum price paid for Water Pollution Control and no additional compensation will be allowed therefor.

### **10-1.07 TEMPORARY COVER**

Temporary cover shall conform to the details shown on the plans. The minimum quantity of temporary cover required for this project shall be 400 square meters.

The Contractor shall use temporary cover as one of the various measures to prevent water pollution. The Storm Water Pollution Prevention Plan shall graphically show the use of temporary cover in relation to other water pollution control work specified elsewhere in these special provisions.

## **MATERIALS**

Materials shall conform to the following for either plastic or fabric sheeting:

If fabric is used, the fabric shall be a minimum 115 g/m<sup>2</sup> slit film woven fabric made of monofilaments of polypropylene. The fabric shall be non biodegradable, resistant to sunlight deterioration, inert to most soil chemicals and furnished with sealed edges on all sides to prevent unraveling. The fabric shall also conform to the following:

| Properties                    |              |
|-------------------------------|--------------|
| Grab tensile strength         | 0.85-0.95 kn |
| Elongation at break (minimum) | 15%          |

If plastic sheeting is used, the sheeting shall be polyethylene, new and a minimum of 0.33 mm thickness.

## **INSTALLATION**

Fabric or plastic sheeting shall be placed and anchored as shown on the plans. Abutting edges shall overlap a minimum of a 0.6m. Rock bags with a weighted mass ranging from 13 kg to 22 kg shall be placed on the overlap area and along the toe at a maximum spacing of 2.4 m. Anchoring temporary cover by using staples or wooden lath and anchors may be allowed instead of rock bags as determined by the Engineer. The Contractor shall submit details for any alternative anchoring system to the Engineer for approval prior to installation. Non-abutting edges shall be embedded a minimum of 150 mm in native soil.

Temporary cover damaged as a result of the Contractors operations shall be replaced by the Contractor at his expense.

## MEASUREMENT AND PAYMENT

The contract lump sum price paid for temporary cover shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing, maintaining and removing temporary cover, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. If the Contractor removes the temporary cover in order to facilitate any other work, the temporary cover shall be replaced and secured by the contractor at no additional cost to the State.

### 10-1.08 TEMPORARY CONCRETE WASHOUT FACILITY

Temporary concrete washout facilities shall be constructed, maintained, and later removed as shown on the plans, in conformance with these special provisions and as directed by the Engineer.

Temporary concrete washout facilities shall be installed prior to beginning any placement of concrete and located a minimum of 15 m from storm drain inlets, open drainage facilities, and watercourses, unless determined infeasible by the Engineer. Each facility shall be located away from construction traffic or access areas to prevent disturbance or tracking.

A sign shall be installed as shown on the plans adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

Temporary concrete washout facilities shall be constructed on grade or below grade at the option of the Contractor. The minimum quantity of concrete washouts required for this project shall be 2.

Temporary concrete washout facilities shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations for all concrete wastes. These facilities shall be constructed to contain all liquid and concrete waste without seepage, spillage or overflow.

## MATERIALS

Materials used in the construction of temporary concrete washout facility shall conform to the following:

- A **PLASTIC SHEETING.**—Plastic sheeting shall be new and a minimum of 0.33 mm thick polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material. Plastic sheeting shall not have seams or overlapping joints.
- B **ROCK BAG.**—Rock bag fabric shall be non-woven polypropylene, with a minimum unit weight of 250 g/m<sup>2</sup>. The fabric shall have a mullen burst strength of at least 2500 kPa, per ASTM Designation: D3786 and an ultraviolet (UV) stability exceeding 70 percent at 500 hours. Rock bags shall have a length of 600 mm to 800 mm, width of 400 mm to 500 mm, thickness of 150 mm to 200 mm, and shall be filled to a weighted mass ranging from 13 kg to 22 kg. Rock bag fill material shall be non-cohesive, gravel, free from deleterious material. After filling, the opening shall be secured such that rock shall not escape from the bag.
- C **STRAW BALES.**—Straw for straw bales shall conform to the provisions in Section 20-2.06, "Straw," of the Standard Specifications.

Each straw bale shall be a minimum of 360 mm wide, 450 mm in height, 900 mm in length and shall have a minimum mass of 23 kg. The straw bale shall be composed entirely of vegetative matter, except for binding material.

Bales shall be bound by either wire, nylon or polypropylene string. Jute and cotton binding shall not be used. Wire shall be a minimum of 1.57 mm (16-gage) baling wire. Nylon or polypropylene string shall be approximately 2 mm in diameter with 360 N of breaking strength.
- D **STAKES.**—Stakes shall be 50 mm x 50 mm wood posts. Each stake shall have a minimum length of one meter. Metal stakes may be used as an alternative. The Contractor shall submit a sample of the metal stake to the Engineer prior to installation. The tops of the metal stakes shall be bent over at a 90-degree angle. No additional compensation will be allowed for the use of a metal stake.
- E **STAPLES.**—Staples shall be made of 11-gage minimum steel wire and shall be U-shaped with 200-mm legs and 50-mm crown.

### TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ON GRADE)

Temporary concrete washout facility (type on grade) shall be constructed as shown on the plans with a minimum length of 3 m and a minimum width of 4.5 m. The length and width of a facility may be increased, at the Contractor's expense, upon approval of the Engineer.



## **TEMPORARY CONCRETE WASHOUT FACILITY (TYPE BELOW GRADE)**

Temporary concrete washout facility (type below grade) shall be constructed as shown on the plans with a minimum length of 3 m and a minimum width of 4.5 m. The length and width of a facility may be increased, at the Contractor's expense, upon approval of the Engineer.

## **MAINTENANCE AND REMOVAL**

Temporary concrete washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 100mm for on grade facilities and 300mm for below grade facilities. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials shall be removed and disposed of in conformance with the provisions in Section 15-3.02, "Removal Methods," of the Standard Specifications. Minor holes and tears in the plastic sheeting may be taped as long as the repair does not compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, as determined by the Engineer, the hardened concrete shall be removed and disposed of in conformance with the provisions in Section 15-3.02 of the Standard Specifications. Materials used to construct temporary concrete washout facilities shall become the property of the Contractor, shall be removed from the site of the work, and shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications.

Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled and repaired in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

## **PAYMENT**

The contract lump sum price paid for temporary concrete washout facilities shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing, maintaining and removing temporary concrete washout facilities, complete in place, including straw bales, plastic lining, sign, portable delineators, lath and flagging, rock bags, stakes, and staples, and excavation and backfill, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **10-1.09 PRESERVATION OF PROPERTY**

Attention is directed to Section 7-1.11, "Preservation of Property," of the Standard Specifications and these special provisions.

Existing trees, shrubs and other plants, that are not to be removed as shown on the plans or specified in these special provisions, and are injured or damaged by reason of the Contractor's operations, shall be replaced by the Contractor. The minimum size of tree replacement shall be No. 15 container and the minimum size of shrub replacement shall be No. 5 container. Replacement planting shall conform to the requirements in Section 20-4.07, "Replacement," of the Standard Specifications. The Contractor shall water replacement plants in conformance with the provisions in Section 20-4.06, "Watering," of the Standard Specifications.

Damaged or injured plants shall be removed and disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications. At the option of the Contractor, removed trees and shrubs may be reduced to chips. The chipped material shall be spread within the highway right of way at locations designated by the Engineer.

Replacement planting of injured or damaged trees, shrubs, and other plants shall be completed prior to the start of the plant establishment period. Replacement planting shall conform to the provisions in Section 20-4.05, "Planting," of the Standard Specifications.

### **10-1.10 DAMAGE REPAIR**

Attention is directed to Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," of the Standard Specifications and these special provisions.

When as a result of freezing conditions (as defined herein) during the plant establishment period, plants have died or, in the opinion of the Engineer, have deteriorated to a point beyond which the plants will not mature as typical examples of their species, the Engineer may direct replacement of the affected plants. The total cost of ordered plant replacement work will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. A freezing condition, for the purpose of this specification, occurs when the temperature at or near the affected area has been officially recorded below 0°C and plants have been killed or damaged to the degree described above.

When, as a result of drought conditions (as defined herein) during the plant establishment period, plants have died or, in the opinion of the Engineer, have deteriorated to a point beyond which the plants will not mature as typical examples of their species, the Engineer may direct replacement of the affected plants. The total cost of ordered plant replacements, after water

has been restricted or stopped, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Restriction or shutoff of available water shall not relieve the Contractor from performing other contract work. A drought condition occurs when the Department, or its supplier, restricts or stops delivery of water to the Contractor to the degree that plants have died or deteriorated as described above.

When the provisions in Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," of the Standard Specifications are applicable, the provisions above for payment of costs for repair of damage due to rain, freezing conditions and drought shall not apply.

#### **10-1.11 RELIEF FROM MAINTENANCE AND RESPONSIBILITY**

The Contractor may be relieved of the duty of maintenance and protection for those items not directly connected with plant establishment work, except highway planting and irrigation systems in conformance with the provisions in Section 7-1.15, "Relief From Maintenance and Responsibility," of the Standard Specifications.

#### **10-1.12 COOPERATION**

Attention is directed to Section 7-1.14, "Cooperation," and Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications and these special provisions.

It is anticipated that work by another contractor (Contract No. 04-120614) to the new Trancas Street Interchange in the City of Napa on Route 29 from First Street to Sierra Avenue (KP 18.7 to KP 21.7) is anticipated to begin adjacent to and within the limits of this project during progress of plant establishment under this contract.

At the end of plant establishment under this contract, the contractor for Contract No. 04-120611 will be taking over plant establishment for the locations planted under this contract. Prior to the completion of plant establishment under this contract, the Engineer will arrange a field meeting and site review for all plant establishment work, for the purpose of establishing the current plant establishment condition and to transfer all necessary information to the new contractor. The Contractor for this contract (04-120624) shall have one person knowledgeable about the planting and plant establishment work, employed at the level of foreman or field superintendent, attend the field coordination meeting.

#### **10-1.13 PROGRESS SCHEDULE**

Progress schedules are required for this contract and shall be submitted in conformance with the provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications.

#### **10-1.14 OBSTRUCTIONS**

Attention is directed to Section 8-1.10, "Utility and Non-Highway Facilities," and Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Attention is directed to the existing steel casing crossing the L Line at station 1+68+/- . This existing facility shall be protected from damage during the course of contract work.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include, but are not limited to, the following:

| Notification Center                                 | Telephone Number |
|---|------------------|
| Underground Service Alert-Northern California (USA) | 1-800-642-2444   |
|   | 1-800-227-2600   |
| Underground Service Alert-Southern California (USA) | 1-800-422-4133   |
|   | 1-800-227-2600   |

#### **10-1.15 MOBILIZATION**

Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.

#### **10-1.16 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES**

Flagging, signs, and all other traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Category 1 traffic control devices are defined as those devices that are small and lightweight (less than 45 kg), and have been in common use for many years. The devices shall be known to be crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 traffic control devices. Self-certification shall be provided by the manufacturer or Contractor and shall include the following: date, Federal Aid number (if applicable), expenditure authorization, district, county, route and kilometer post of project limits; company name of certifying vendor, street address, city, state and zip code; printed name, signature and title of certifying person; and an indication of which Category 1 traffic control devices will be used on the project. The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 traffic control devices are defined as those items that are small and lightweight (less than 45 kg), that are not expected to produce significant vehicular velocity change, but may otherwise be potentially hazardous. Category 2 traffic control devices include: barricades and portable sign supports.

Category 2 devices purchased on or after October 1, 2000 shall be on the Federal Highway Administration (FHWA) Acceptable Crashworthy Category 2 Hardware for Work Zones list. This list is maintained by FHWA and can be located at the following internet address: <http://safety.fhwa.dot.gov/fourthlevel/hardware/listing.cfm?code=workzone>. The Department maintains a secondary list at the following internet address: <http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdffiles.htm>.

Category 2 devices that have not received FHWA acceptance, and were purchased before October 1, 2000, may continue to be used until they complete their useful service life or until January 1, 2003, whichever comes first. Category 2 devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer by the start of the project. The label shall be readable. After January 1, 2003, all Category 2 devices without a label shall not be used on the project.

Full compensation for providing self-certification for crashworthiness of Category 1 traffic control devices and labeling Category 2 devices as specified shall be considered as included in the prices paid for the various contract items of work requiring the use of the Category 1 or Category 2 traffic control devices and no additional compensation will be allowed therefor.

#### **10-1.17 CONSTRUCTION AREA SIGNS**

Construction area signs shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

| Notification Center                                 | Telephone Number                 |
|---|----------------------------------|
| Underground Service Alert-Northern California (USA) | 1-800-642-2444<br>1-800-227-2600 |
| Underground Service Alert-Southern California (USA) | 1-800-422-4133<br>1-800-227-2600 |

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes.

Sign substrates for stationary mounted construction area signs may be fabricated from fiberglass reinforced plastic as specified under "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

#### **10-1.18 MAINTAINING TRAFFIC**

Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the provisions in "Public Safety" of these special provisions and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

No work that would require a lane closure or ramp closure shall be performed. Shoulder closures shall be used when unloading and loading materials within 4.3 meters of the edge-of-travelled way, when trucks or other vehicles are anticipated to be entering and exiting the roadway, and when performing work within 1.8 meters of the travelled way in accordance with "Public Safety" of these special provisions.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including any section closed to public traffic.

The Contractor shall notify local authorities of the Contractor's intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make arrangements relative to keeping the working area clear of parked vehicles.

Whenever vehicles or equipment are parked on the shoulder within 1.8 m of a traffic lane, the shoulder area shall be closed with fluorescent traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 7.5 m intervals to a point not less than 7.5 m past the last vehicle or piece of equipment. A minimum of 9 cones or portable delineators shall be used for the taper. A C23 (Road Work Ahead) or C24 (Shoulder Work Ahead) sign shall be mounted on a portable sign stand with flags. The sign shall be placed where designated by the Engineer.

Shoulders shall be closed only during the hours shown on the charts included in this section "Maintaining Traffic." Except work required under Sections 7-1.08 and 7-1.09, work that interferes with public traffic shall be performed only during the hours shown for shoulder closures.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor, if in the opinion of the Engineer, public traffic will be better served and the work expedited. These deviations shall not be adopted by the Contractor until the Engineer has approved the deviations in writing. All other modifications will be made by contract change order.

| Chart No. 1<br>Multilane Lane Requirements   |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |
|--|------|--|---|---|---|---|---|---|---|---|----|----|------|---|---|---|---|---|---|---|---|---|----|----|---|----|
| Location: Northbound – On Rte. 29 & Onramp from First Street – From KP18.5 to KP18.7 at First Street, Napa County. |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |
| FROM HOUR TO HOUR  | a.m. |  |   |   |   |   |   |   |   |   |    |    | p.m. |   |   |   |   |   |   |   |   |   |    |    |   |    |
|  | 12   | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |   | 12 |
| Mondays through Thursdays  | S    | S  | S | S | S | S | S | S |   |   | S  | S  | S    | S | S | S | S |   |   | S | S | S | S  | S  | S |    |
| Fridays  | S    | S  | S | S | S | S | S | S |   |   | S  | S  | S    | S | S | S | S |   |   | S | S | S | S  | S  | S |    |
| Saturdays  | S    | S  | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S |    |
| Sundays  | S    | S  | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S |    |
| Day before designated legal holiday  | S    | S  | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    | S  | S |    |
| Designated legal holidays  | S    | S  | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    | S  | S |    |
| Legend:  |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |
| S  |      | Shoulder Closure permitted.  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |
|  |      | No lane closure, shoulder closure, or work that interferes with public traffic allowed |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |
| REMARKS:   |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |   |    |

(F=NAP-29-KP20.1/120611/9.00R/96.13/D)

| Chart No. 2<br>Multilane Lane Requirements   |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
|--|------|--|---|---|---|---|---|---|---|---|----|----|------|---|---|---|---|---|---|---|---|---|----|----|----|
| Location: Southbound – On Rte. 29 & Off ramp to First Street – From KP18.5 to KP18.7 at First Street, Napa County. |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| FROM HOUR TO HOUR  | a.m. |  |   |   |   |   |   |   |   |   |    |    | p.m. |   |   |   |   |   |   |   |   |   |    |    |    |
|  | 12   | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Mondays through Thursdays  | S    | S  | S | S | S | S | S | S |   |   | S  | S  | S    | S | S | S | S |   |   | S | S | S | S  | S  | S  |
| Fridays  | S    | S  | S | S | S | S | S | S |   |   | S  | S  | S    | S | S | S | S |   |   | S | S | S | S  | S  | S  |
| Saturdays  | S    | S  | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S  |
| Sundays  | S    | S  | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S  |
| Day before designated legal holiday  | S    | S  | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   | S  | S  |    |
| Designated legal holidays  | S    | S  | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   | S  | S  |    |
| Legend:  |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| S  |      | Shoulder Closure permitted.  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
|  |      | No lane closure, shoulder closure, or work that interferes with public traffic allowed |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| REMARKS:   |      |  |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |

(F=NAP-29-KP20.1/120611/9.00R/96.13/D)

| Chart No. 3<br>Multilane Lane Requirements  |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
|---|------|---|---|---|---|---|---|---|---|---|----|----|------|---|---|---|---|---|---|---|---|---|----|----|----|
| Location: First Street & Browns Valley Road - Eastbound & Westbound - at State Route 29 |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| FROM HOUR TO HOUR   | a.m. |   |   |   |   |   |   |   |   |   |    |    | p.m. |   |   |   |   |   |   |   |   |   |    |    |    |
|   | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Mondays through Thursdays   | S    | S | S | S | S | S | S | S |   |   | S  | S  | S    | S | S | S | S |   |   | S | S | S | S  | S  | S  |
| Fridays   | S    | S | S | S | S | S | S |   |   | S | S  | S  | S    | S | S | S |   |   | S | S | S | S | S  | S  |    |
| Saturdays   | S    | S | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S  |
| Sundays   | S    | S | S | S | S | S | S | S | S | S | S  | S  | S    | S | S | S | S | S | S | S | S | S | S  | S  | S  |
| Day before designated legal holiday   | S    | S | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   | S  | S  |    |
| Designated legal holidays   | S    | S | S | S | S | S | S |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   | S  | S  |    |
| Legend:   |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| S Shoulder Closure permitted.   |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
|   |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| No lane closure, shoulder closure, or work that interferes with public traffic allowed  |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
|   |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |
| REMARKS:  |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |    |

#### 10-1.19 TEMPORARY CRASH CUSHION MODULE

This work shall consist of furnishing, installing, and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the plans, as specified in these special provisions or where designated by the Engineer. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in conformance with the details shown on the plans and these special provisions.

Attention is directed to "Public Safety", "Order of Work", and "Temporary Railing" of these special provisions.

## **GENERAL**

Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.

Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. Sand filled temporary crash cushions may be removed during a work period for access to the work provided that the exposed fixed obstacle is 4.6 m or more from a lane carrying public traffic and the temporary crash cushion is reset to protect the obstacle prior to the end of the work period in which the fixed obstacle was exposed. When no longer required, as determined by the Engineer, sand filled temporary crash cushions shall be removed from the site of the work.

## **MATERIALS**

At the Contractor's option, the modules for use in sand filled temporary crash cushions shall be either Energite III Inertial Modules, Fitch Inertial Modules or Traffix Sand Barrels manufactured after March 31, 1997, or equal:

- A. Energite III Inertial Modules, manufactured by Energy Absorption Systems, Inc., One East Wacker Drive, Chicago, IL 60601-2076, Telephone 1-312-467-6750, FAX 1-800-770-6755.
  - 1. Distributor (Northern): Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, Telephone 1-800-884-8274, FAX 1-916-387-9734
  - 2. Distributor (Southern): Traffic Control Service, Inc., 1881 Betmor Lane, Anaheim, CA 92805, Telephone 1-800-222-8274, FAX 1-714-937-1070.
- B. Fitch Inertial Modules, manufactured by Roadway Safety Service, Inc., 1050 North Rand Road, Wauconda, IL 60084, Telephone 1-800-426-0839, FAX 1-847-487-9820.
  - 1.. Distributor (Northern): Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, Telephone 1-800-884-8274, FAX 1-916-387-9734
  - 2. Distributor (Southern): Traffic Control Service, Inc., 1881 Betmor Lane, Anaheim, CA 92805, Telephone 1-800-222-8274, FAX 1-714-937-1070.
- C. Traffix Sand Barrels, manufactured by Traffix Devices, Inc., 220 Calle Pintoresco, San Clemente, CA 92672, Telephone 1-949-361-5663, FAX 1-949-361-9205.
  - 1. Russ Enterprises, Inc., 1533 Berger Drive, San Jose, CA 95112, Telephone 1-408-287-4303, FAX 1-408-287-1929.
  - 2. Statewide Safety, P.O. Box 1440, Pismo Beach, CA 93448, Telephone 1-800-559-7080, FAX 1-805-929-5786.

Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color, as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified herein may be utilized. If used Fitch modules requiring a seal are furnished, the top edge of the seal shall be securely fastened to the wall of the module by a continuous strip of heavy duty tape.

Modules shall be filled with sand in conformance with the manufacturer's directions, and to the sand capacity in kilograms for each module shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water as determined by California Test 226.

Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at the Contractor's expense. Modules damaged beyond repair, as determined by the Engineer, due to the Contractor's operations shall be removed and replaced by the Contractor at the Contractor's expense.

## **INSTALLATION**

Temporary crash cushion modules shall be placed on movable pallets or frames conforming to the dimensions shown on the plans. The pallets or frames shall provide a full bearing base beneath the modules. The modules and supporting pallets or frames shall not be moved by sliding or skidding along the pavement or bridge deck.

A Type R or P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of the crash cushion array is within 3.6 m of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods determined by the Engineer.

At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in the permanent work.

#### **MEASUREMENT AND PAYMENT**

Temporary crash cushion modules placed in conformance with the provisions in "Public Safety" of these special provisions will not be measured nor paid for.

#### **10-1.20 EXISTING HIGHWAY FACILITIES**

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

##### **RELOCATE ROADSIDE SIGN**

Existing roadside signs shall be removed and relocated to the new locations shown on the plans.

Each roadside sign shall be installed at the new location on the same day that the sign is removed from its original location.

Two holes shall be drilled in each existing post as required to provide the breakaway feature shown on the plans.

##### **REMOVE SACKED CONCRETE SLOPE PROTECTION**

Existing sacked concrete slope protection, where shown on the plans to be removed, shall be removed.

The pay quantities of concrete to be removed will be measured by the cubic meter, measured before and during removal operations.

Existing sacked concrete slope protection removed shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Where concrete has been removed outside the roadway prism, the backfilled areas shall be graded to drain and blend in with the surrounding terrain.

Concrete to be removed which has portions of the same structure both above and below ground will be considered as concrete above ground for compensation.

#### **10-1.21 CLEARING AND GRUBBING**

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

Existing Eucalyptus trees, where shown on the plans to be removed, shall be removed and disposed of. Designated existing Eucalyptus trees shall be removed to ground level. Tree stumps shall be treated with an CAL-EPA approved topical herbicide within one (1) hour of cutting to prevent stump resprouting. Root systems of the designated trees shall remain.

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines.

Existing vegetation outside the areas to be cleared and grubbed shall be protected from injury or damage resulting from the Contractor's operations.

Activities controlled by the Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

Nothing herein shall be construed as relieving the Contractor of the Contractor's responsibility for final cleanup of the highway as provided in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

#### **10-1.22 EARTHWORK**

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

Surplus excavated material not designated or determined to contain aurally deposited lead shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

##### **IMPORTED BORROW (SOIL COVER)**

Attention is directed to "Material Containing Aerially Deposited Lead" of these special provisions.

Imported borrow (soil cover), to be used at the Mandatory Disposal Site to encapsulate the Type Y material containing aurally deposited lead, shall conform to Section 19, "Earthwork," of the Standard Specifications and these special provisions.

The portion of imported borrow (soil cover) placed within 1.5 m of the finished grade shall have a Resistance (R-Value) of not less than 40.

Imported borrow (soil cover) will be measured and paid for by the cubic meter and the quantity to be paid for will be computed in the following manner:

- A. The total quantity of imported borrow (soil cover) will be computed in conformance with the provisions for roadway excavation in Section 19-2.08, "Measurement," of the Standard Specifications, on the basis of the planned or authorized cross section for embankments as shown on the plans and the measured original ground and Type Y material surfaces.
- B. The Contractor, at the Contractor's option, may compact the ground surface on which imported borrow (soil cover) is to be constructed before placing any imported borrow (soil cover) thereon. If the compaction results in an average subsidence exceeding 75 mm, the original ground and Type Y material surfaces will be measured after completion of the compaction. The Engineer shall be allowed the time necessary to complete the measurement of an area before placement of imported borrow (soil cover) is started in that area.
- C. The quantities of roadway excavation, structure excavation and ditch excavation, which have been used in the soil cover embankment, will be adjusted by multiplying by a grading factor to be determined in the field by the Engineer. No further adjustment will be made in the event that the grading factor determined by the Engineer does not equal the actual grading factor.
- D. The quantity of imported borrow (soil cover) to be paid for will be the total soil cover embankment quantity placed, including an additional quantity of 30 cubic meters for the anticipated effect of subsidence. No adjustment will be made in the event that the anticipated subsidence does not equal the actual subsidence. Quantities of roadway, structure, and ditch excavation not containing Type Y aerially deposited lead, and meeting the requirements for the soil cover embankment, shall be used for the soil cover embankment. Quantities of roadway, structure, and ditch excavation used for the soil cover embankment will be measured and paid for as imported borrow (soil cover). No deduction from excavation quantities will be made for excavation materials used as soil cover embankment.
- E. The Contractor may propose a plan whereby the Contractor would be paid on the basis of measured settlement in lieu of the allowance specified above. The proposal shall include complete details of the subsidence-measuring devices and a detailed plan of each installation. If the proposed plan is approved by the Engineer, the Contractor, at the Contractor's expense, shall provide, install and maintain the subsidence-measuring devices. The Engineer will take necessary readings to determine the progress of subsidence, if any, and the Contractor shall provide necessary assistance to make the readings.
- F. Installed devices which are determined by the Engineer to have been damaged will not be used for the determination of subsidence for the area the devices represent in the pattern of approved installations. The subsidence of the area represented by that installation shall be considered zero, regardless of the subsidence measured at other installations.
- G. The volumes required as a result of subsidence will be computed by the average-end-area method from the original measurements and the final measurements, including zero subsidence at all points and for all areas as provided herein. It shall be understood and agreed that the subsidence at the point of intersection of the side slopes (and end slopes at structures) with the ground line as established by the original cross sections shall be considered as zero. Unless otherwise agreed to by the Engineer, the subsidence shall be considered as zero at the points on the cross sections 15 m beyond the beginning and ending of the instrumented area. The computed volumes for such subsidence will be added to the quantities of embankment measured as specified herein.
- H. Detachable elements of the subsidence-measuring devices which can be salvaged without damage to the work shall remain the property of the Contractor and shall be removed from the highway right of way after final measurements are made.

#### **10-1.23 MATERIAL CONTAINING AERIALY DEPOSITED LEAD**

Earthwork involving materials containing aerially deposited lead shall conform to the provisions in "Earthwork" and this section "Material Containing Aerially Deposited Lead" of these special provisions.

Attention is directed to "Aerially Deposited Lead" of these special provisions.

Type Y material contains aerially deposited lead in average concentrations greater than or equal to 5.0 mg/L Soluble Lead and between 0 - 350 mg/kg (inclusive) Total Lead, as tested using the California Waste Extraction Test. Type Y material exists at the locations shown on the plans. These materials shall be placed as shown on the plans, unless otherwise directed by the Engineer, and covered with a minimum 0.6-m layer of non-hazardous soil. These materials are hazardous waste regulated by the State of California that may be reused as permitted under the Variance of the Department of Toxic Substances Control. Temporary surplus material may be generated on this project due to the requirements of stage construction. Temporary surplus material shall not be transported outside the project limits. In order to conform to the requirements of these provisions, it may be necessary to stockpile materials for subsequent stages or construct some embankments out of stage or handle temporary surplus material more than once.



## **LEAD COMPLIANCE PLAN**

The Contractor shall prepare a project specific Lead Compliance Plan to prevent or minimize worker exposure to lead while handling material containing aerially deposited lead. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific Cal-OSHA requirements when working with lead.

The Lead Compliance Plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Plan shall be submitted to the Engineer for review and acceptance at least 15 days prior to beginning work in areas containing aerially deposited lead.

The Lead Compliance Plan shall include perimeter air monitoring incorporating upwind and downwind locations as shown on the plans or as approved by the Engineer. Monitoring shall be by personal air samplers using National Institute of Safety and Health (NIOSH) Method 7082. Sampling shall achieve a detection limit of  $0.05\mu\text{g}/\text{m}^3$  of air per day. Daily monitoring shall take place while the Contractor clears and grubs and performs earthwork operations. A single representative daily sample shall be analyzed for lead. Results shall be analyzed and provided to the Engineer within 24 hours. Average lead concentrations shall not exceed  $1.5\mu\text{g}/\text{m}^3$  of air per day. If concentrations exceed this level the Contractor shall stop work and modify the work to prevent release of lead. Monitoring shall be done under the direction of and data reviewed by and signed by a Certified Industrial Hygienist.

The Contractor shall not work in areas containing aerially deposited lead within the project limits, unless authorized in writing by the Engineer, until the Engineer has accepted the Lead Compliance Plan.

Prior to performing work in areas containing aerially deposited lead, personnel who have no prior training or are not current in their training status, including State personnel, shall complete a safety training program provided by the Contractor. The safety training program shall meet the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead."

Personal protective equipment, training, and washing facilities required by the Contractor's Lead Compliance Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 5.

The Engineer will notify the Contractor of acceptance or rejection of any submitted or revised Lead Compliance Plan not more than 10 days after submittal of the plan.

The contract lump sum price paid for Lead Compliance Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Lead Compliance Plan, including paying the Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## **EXCAVATION AND TRANSPORTATION PLAN**

Within 15 days after approval of the contract, the Contractor shall submit 3 copies of the Excavation and Transportation Plan to the Engineer. The Engineer will have 7 days to review the Excavation and Transportation Plan. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the Excavation and Transportation Plan within 7 days of receipt of the Engineer's comments. The Engineer will have 7 days to review the revisions. Upon the Engineer's approval of the Excavation and Transportation Plan, 3 additional copies of the Excavation and Transportation Plan incorporating the required changes shall be submitted to the Engineer. Minor changes or clarifications to the initial submittal may be made and attached as amendments to the Excavation and Transportation Plan. In order to allow construction to proceed, the Engineer may conditionally approve the Excavation and Transportation Plan while minor revisions or amendments to the Plan are being completed.

The Contractor shall prepare a written, project specific Excavation and Transportation Plan establishing the procedures the Contractor will use to comply with requirements for excavating, transporting, and placing (or disposing) of material containing aerially deposited lead. The Excavation and Transportation Plan shall conform to the regulations of the Department of Toxic Substance Control and the California Division of Occupational Safety and Health Administration (Cal-OSHA). The sampling and analysis plans shall meet the requirements for the design and development of the sampling plan, statistical analysis, and reporting of test results contained in USEPA, SW 846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical, Chapter Nine, Section 9.1. The plan shall contain, but not be limited to the following elements:

- A. Excavation schedule (by location and date)
- B. Temporary locations of stockpiled material
- C. Sampling and analysis plans for areas after removal of a stockpile
  - 1. Location and number of samples
  - 2. Analytical laboratory
- D. Sampling and analysis plan for soil cover
- E. Transportation equipment and routes
- F. Method for preventing spills and tracking material onto public roads

- G. Truck waiting and staging areas
- H. Site for disposal of hazardous waste
- I. Example of Bill of Lading to be carried by trucks transporting Type Y material. The Bill of Lading shall contain: US DOT description including shipping name, hazard class, and ID number; handling codes; quantity of material; volume of material. Copies of the bills of lading shall be provided to the Engineer upon placement of Type Y material in its final location. Trucks carrying Type Y material shall not leave the highway right of way.
- J. Spill Contingency Plan for material containing aurally deposited lead

## **DUST CONTROL**

Excavation, transportation, placement, and handling of materials containing aurally deposited lead shall result in no visible dust migration. The Contractor shall have a water truck or tank on the job site at all times while clearing and grubbing and performing earthwork operations in work areas containing aurally deposited lead.

Stockpiles of material containing aurally deposited lead shall not be placed where affected by surface run-on or run-off. Stockpiles shall be covered with plastic sheeting 0.33 mm minimum thickness or 0.3 m of non-hazardous material. Stockpiles shall not be placed in environmentally sensitive areas. Stockpiled material shall not enter storm drains, inlets, or waters of the State.

## **MATERIAL TRANSPORTATION**

Prior to traveling on public roads, loose and extraneous material shall be removed from surfaces outside the cargo areas of the transporting vehicles and the cargo shall be covered with tarpaulins, or other cover, as outlined in the approved Excavation and Transportation Plan. The Contractor shall be responsible for costs due to spillage of material containing lead during transport. The Department will not consider the Contractor a generator of these hazardous materials, and the Contractor will not be obligated for further cleanup, removal, or remedial action for such materials handled or disposed of in conformance with the requirements specified in these special provisions and the appropriate State and Federal laws and regulations and county and municipal ordinances and regulations regarding hazardous waste.

## **DISPOSAL**

Surplus materials whose lead content is not known shall be analyzed for aurally deposited lead by the Contractor prior to removing the materials from within the project limits. The Contractor shall submit a sampling and analysis plan and the name of the analytical laboratory to the Engineer at least 15 days prior to beginning sampling or analysis. The Contractor shall use a laboratory certified by the California Department of Health Services. Sampling shall be at a minimum rate of one sample for each 150 m<sup>3</sup> of surplus material and tested for lead using EPA Method 6010 or 7000 series.

Sampling, analyses, and reporting of results for surplus materials not previously sampled will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

Materials containing aurally deposited lead shall be disposed of within California. The disposal site shall be operating under a permit issued by the California Environmental Protection Agency (Cal-EPA) Boards.

The Engineer will obtain the Environmental Protection Agency (EPA) Generator Identification Number for hazardous material disposal. The Engineer will sign all hazardous waste manifests. The Contractor shall notify the Engineer five days before the manifests are to be signed.

The Engineer will obtain the State of California Board of Equalization Identification Number for hazardous material disposal. The Engineer will sign all hazardous waste manifests. The Contractor shall notify the Engineer five days before the manifests are to be signed.

Sampling, analyzing, transporting, and disposing of materials containing aurally deposited lead excavated outside the pay limits of excavation will be at the Contractor's expense.

## **MEASUREMENT AND PAYMENT**

Quantities of roadway excavation (aurally deposited lead) and structure excavation (aurally deposited lead), of the types shown in the Engineer's Estimate, will be measured and paid for in the same manner specified for roadway excavation and structure excavation, respectively, in Section 19, "Earthwork," of the Standard Specifications.

Full compensation for preparing an approved Excavation and Transportation Plan, transporting material containing aurally deposited lead reused in the work from location to location, and transporting and disposing of material containing aurally deposited lead shall be considered as included in the contract prices paid per cubic meter for the items of roadway excavation (aurally deposited lead) and structure excavation (aurally deposited lead) involved, and no additional compensation will be allowed therefor.

No payment for stockpiling of material containing aurally deposited lead will be made, unless the stockpiling is ordered by the Engineer.

#### **10-1.24 CONTROLLED LOW STRENGTH MATERIAL**

Controlled low strength material shall consist of a workable mixture of aggregate, cementitious materials, and water and shall conform to the provisions for slurry cement backfill in Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications and these special provisions.

At the option of the Contractor, controlled low strength material may be used as structure backfill for pipe culverts, except that controlled low strength material shall not be used as structure backfill for aluminum and aluminum-coated culverts nor for culverts having a diameter or span greater than 6.1 m.

When controlled low strength material is used for structure backfill, the width of the excavation shown on the plans may be reduced so that the clear distance between the outside of the pipe and the side of the excavation, on each side of the pipe, is a minimum of 300 mm. This minimum may be reduced to 150 mm when the height of cover is less than or equal to 6.1 m or the pipe diameter or span is less than 1050 mm.

Controlled low strength material in new construction shall not be permanently placed higher than the basement soil. For trenches in existing pavements, permanent placement shall be no higher than the bottom of the existing pavement permeable drainage layer. If a drainage layer does not exist, permanent placement in existing pavements shall be no higher than 25 mm below the bottom of the existing asphalt concrete surfacing or no higher than the top of base below the existing portland cement concrete pavement. The minimum height that controlled low strength material shall be placed, relative to the culvert invert, is 0.5 diameter or 0.5 height for rigid culverts and 0.7 diameter or 0.7 height for flexible culverts.

When controlled low strength material is proposed for use, the Contractor shall submit a mix design and test data to the Engineer for approval prior to excavating the trench for which controlled low strength material is proposed for use. The test data and mix design shall provide for the following:

- A. A 28-day compressive strength between 345 kPa and 690 kPa for pipe culverts having a height of cover of 6.1 m or less and a minimum 28-day compressive strength of 690 kPa for pipe culverts having a height of cover greater than 6.1 m. Compressive strength shall be determined in conformance with the requirements in ASTM Designation: D 4832.
- B. When controlled low strength material is used as structure backfill for pipe culverts, the sections of pipe culvert in contact with the controlled low strength material shall conform to the requirements of Chapter 850 of the Highway Design Manual using the minimum resistivity, pH, chloride content, and sulfate content of the hardened controlled low strength material. Minimum resistivity and pH shall be determined in conformance with the requirements of California Test 643. The chloride content shall be determined in conformance with the requirements of California Test 422 and the sulfate content shall be determined in conformance with the requirements of California Test 417.
- C. Cement shall be any type of portland cement conforming to the requirements in ASTM Designation: C 150; or any type of blended hydraulic cement conforming to the requirements in ASTM Designation: C 595M or the physical requirements in ASTM Designation: C 1157M. Testing of cement will not be required.
- D. Admixtures may be used in conformance with the provisions in Section 90-4, "Admixtures," of the Standard Specifications. Chemical admixtures containing chlorides as Cl in excess of one percent by mass of admixture, as determined in conformance with the requirements of California Test 415, shall not be used. If an air-entraining admixture is used, the maximum air content shall be limited to 20 percent. Mineral admixtures shall be used at the Contractor's option.

Materials for controlled low strength material shall be thoroughly machine-mixed in a pugmill, rotary drum or other approved mixer. Mixing shall continue until the cementitious material and water are thoroughly dispersed throughout the material. Controlled low strength material shall be placed in the work within 3 hours after introduction of the cement to the aggregates.

When controlled low strength material is to be placed within the traveled way or otherwise to be covered by paving or embankment materials, the material shall achieve a maximum indentation diameter of 76 mm prior to covering and opening to public traffic. Penetration resistance shall be measured in conformance with the requirements in ASTM Designation: D 6024.

Controlled low strength material used as structure backfill for pipe culverts will be considered structure backfill for compensation purposes.

#### **10-1.25 EROSION CONTROL (BLANKET)**

Erosion control (blanket) shall conform to the details shown on the plans, the provisions in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

Erosion control (blanket) work shall consist of applying seed and commercial fertilizer and installing erosion control blanket to ditches, and swales embankment slopes, excavation slopes and other areas designated by the Engineer.

## MATERIALS

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

### Seed

Seed shall conform to the provisions in Section 20-2.10, "Seed," of the Standard Specifications. Individual seed species shall be measured and mixed in the presence of the Engineer.

Seed not required to be labeled under the California Food and Agricultural Code shall be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists.

Seed shall have been tested for purity and germination not more than one year prior to application of seed.

Results from testing seed for purity and germination shall be furnished to the Engineer prior to applying seed.

Seed shall be delivered to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag will not be accepted.

A sample of approximately 30 g of seed will be taken from each seed container by the Engineer.

### Non-Legume Seed

Non-legume seed shall consist of the following:

NON-LEGUME SEED (SEED TYPE 2)

| Botanical Name<br>(Common Name)                 | Percent Germination<br>(Minimum) | Kilograms Pure Live Seed Per Hectare<br>(Slope Measurement) |
|---|----------------------------------|---|
| Hordeum brachyantherum *<br>(California Barley) | 40                               | 30.0  |
| Festuca rubra Molate<br>(Molate Red Fescue)     | 45                               | 20.0  |
| Agrostis exarata<br>(Spike Bent Grass)          | 45                               | 1.0   |

\*California Native Seed Source

NON-LEGUME SEED (SEED TYPE 3)

| Botanical Name<br>(Common Name)                 | Percent Germination<br>(Minimum) | Kilograms Pure Live Seed Per Hectare<br>(Slope Measurement) |
|---|----------------------------------|---|
| Hordeum brachyantherum *<br>(California Barley) | 40                               | 30.0  |
| Festuca rubra Molate<br>(Molate Red Fescue)     | 45                               | 20.0  |

\*California Native Seed Source

### Compost

Compost shall be derived from green material consisting of chipped, shredded or ground vegetation or clean processed recycled wood products or a Class A, exceptional quality biosolids composts, as required by the United States Environmental Protection Agency (EPA), 40 CFR, Part 503c regulations or a combination of green material and biosolids compost. The compost shall be processed or completed to reduce weed seeds, pathogens and deleterious material, and shall not contain paint, petroleum products, herbicides, fungicides or other chemical residues that would be harmful to plant or animal life. Other deleterious material, plastic, glass, metal or rocks shall not exceed 0.1 percent by weight or volume. A minimum internal temperature of 57°C shall be maintained for at least 15 continuous days during the composting process. The compost shall be thoroughly turned a minimum of 5 times during the composting process and shall go through a minimum 90-day curing period after the 15-day thermophilic compost process has been completed. Compost shall be screened through a maximum 9.5-mm screen. The moisture content of the compost shall not exceed 35 percent. Moisture content shall be determined by California Test 226. Compost products with a higher moisture content may be used provided the weight of the compost is increased to equal the compost with a moisture content of 35 percent. Compost will be tested for maturity and stability with a solvita test kit. The compost shall measure a minimum of 6 on the maturity and stability scale.

### Erosion Control Blanket

Erosion control blanket shall consist of straw, coir or coconut mats secured in place with wire staples and shall conform to the following:

- A. Erosion control blanket shall consist of 100 percent spun coir fiber and shall conform to the following:

| Properties   |                                    |
|--|------------------------------------|
| Weight, grams per square meter,<br>ASTM Designation: 3776C               | 400                                |
| Roll Width, meters, (minimum)  | 2                                  |
| Area/roll, square meters, (minimum)                                      | 200                                |
| Open Area, percent, (maximum)  | 63-70%                             |
| Minimum Tensile Strength, kilo<br>Newtons,<br>ATSM Designation: D4595-86 | 0.23/0.14 (dry)<br>0.17/0.11 (wet) |

- B. Straw and coconut blanket shall be machine produced mats of straw and coconut with a light weight biodegradable sisal or coir jute netting on top. The straw and coconut shall adhered to the netting with biodegradable organic thread or glue strip. The straw and coconut erosion control blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the blanket. Straw and coconut erosion control blanket shall be furnished in rolled strips with a minimum width of 1.8 meters, minimum length of 20 meters (+/-one meter) and a minimum weight of 0.27-kg/m<sup>2</sup>.
- C. Staples for erosion control blankets shall be made of 11-gage minimum steel wire and shall be U-shaped with 200-mm legs and 50-mm crown.

### APPLICATION- LOCATION 1

Erosion control (blanket) materials shall be placed on the slope above the outfall at Napa Creek in separate applications as follows:

- A. Seed and compost shall be applied at the rates indicated in the following table. If hydro-seeding equipment is used to apply seed and commercial fertilizer, the mixture shall be applied within 60- minutes after the seed has been added to the mixture.

| Material                         | Kilograms Per Hectare<br>(Slope Measurement) |
|----------------------------------|--|
| Non-Legume Seed<br>(SEED TYPE 3) | 50.0   |
| Fiber                            | 320  |
| Compost                          | 940  |

- B. The second application shall consist of installing the erosion control blanket over the seed, fiber, and compost application.
- C. Erosion control blanket strips shall be placed loosely on the slope with the longitudinal joints perpendicular to the slope contour lines. Longitudinal and transverse joints of blankets shall be overlapped according to the manufacturer's recommendations and stapled. Staples shall be driven perpendicular to the slopes, and shall be located and spaced in conformance with the manufacturer's instructions. Ends of the blankets shall be secured in place in conformance with the manufacturer's instructions.

### APPLICATION- LOCATION 2

Erosion control (blanket) materials shall be placed upon completion of the ditch widening at Location 2 in separate applications as follows:

- A. Seed, fiber, and compost shall be applied at the rates indicated in the following table. If hydro-seeding equipment is used to apply seed and commercial fertilizer, the mixture shall be applied within 60 minutes after the seed has been added to the mixture.

| Material                         | Kilograms Per Hectare<br>(Slope Measurement) |
|----------------------------------|--|
| Non-Legume Seed<br>(SEED TYPE 2) | 51.0   |
| Fiber                            | 320  |
| Compost                          | 940  |

- A. The second application shall consist of installing the erosion control blanket over the seed and compost application.
- B. Erosion control blanket strips shall be placed loosely along the ditch or swale with the longitudinal joints parallel to the centerline of the ditch or swale. Longitudinal and transverse joints of blankets shall be overlapped according to the manufacturer's recommendations and stapled. Staples shall be driven perpendicular to the slope face, and shall be located and spaced in conformance with the manufacturer's instructions. Ends of the blankets shall be secured in place in conformance with the manufacturer's instructions.

Removal of trash and debris, and mowing shall be required in erosion control blanket areas until acceptance of the contract. Mowing shall be performed after the weed height exceeds 300 mm. Erosion control blanket shall be mowed to a height of 50 mm to 150 mm.

### **MEASUREMENT AND PAYMENT**

The quantity of erosion control (blanket) will be determined by the square meter from actual slope measurement of the area covered by the erosion control blanket.

The contract price paid per square meter for erosion control (blanket) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing erosion control blanket, complete in place, including furnishing and applying pure live seed, fiber, compost, and the materials for the erosion control blanket, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

#### **10-1.26 EROSION CONTROL (TYPE D)**

Erosion control (Type D) shall conform to the provisions in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

Erosion control (Type D) work shall consist of applying erosion control materials to and other areas disturbed by construction activities. Erosion control (Type D) shall be applied during the period starting September 1 and ending November 30, or, if the slope on which the erosion control is to be placed is finished during the winter season as specified in "Water Pollution Control" of these special provisions, the erosion control shall be applied immediately; or, if the slope on which the erosion control is to be placed is finished outside both specified periods and the contract work will be completed before September 1, the erosion control shall be applied as a last item of work.

Prior to installing erosion control materials, soil surface preparation shall conform to the provisions in Section 19-2.05, "Slopes," of the Standard Specifications, except that rills and gullies exceeding 50 mm in depth or width shall be leveled. Vegetative growth, temporary erosion control materials and other debris shall be removed from areas to receive erosion control.

### **MATERIALS**

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

#### **Seed**

Seed shall conform to the provisions in Section 20-2.10, "Seed," of the Standard Specifications. Individual seed species shall be measured and mixed in the presence of the Engineer.

Seed shall be delivered to the project site in unopened separate containers with the seed tag attached. Containers without a seed tag attached will not be accepted.

A sample of approximately 30 g of seed will be taken from each seed container by the Engineer.

#### **Non-Legume Seed**

Non-legume seed shall consist of the following:

#### NON-LEGUME SEED (SEED TYPE 1)

| Botanical Name<br>(Common Name)                 | Percent Germination<br>(Minimum) | Kilograms Pure Live Seed Per Hectare<br>(Slope Measurement) |
|---|----------------------------------|---|
| Hordeum brachyantherum *<br>(California Barley) | 40                               | 30.0  |
| Naesella pulchra*<br>(Purple Needle Grass)      | 45                               | 20.0  |

\*California Native Seed Source

#### **Straw**

Straw shall conform to the provisions in Section 20-2.06, "Straw," of the Standard Specifications and these special provisions.

#### **Compost**

Compost shall be derived from green material consisting of chipped, shredded or ground vegetation or clean processed recycled wood products or a Class A, exceptional quality biosolids composts, as required by the United States Environmental Protection Agency (EPA), 40 CFR, Part 503c regulations or a combination of green material and biosolids compost. The compost shall be processed or completed to reduce weed seeds, pathogens and deleterious material, and shall not contain paint, petroleum products, herbicides, fungicides or other chemical residues that would be harmful to plant or animal life. Other deleterious material, plastic, glass, metal or rocks shall not exceed 0.1 percent by weight or volume. A minimum internal temperature of 57°C shall be maintained for at least 15 continuous days during the composting process. The compost shall be thoroughly turned a minimum of 5 times during the composting process and shall go through a minimum 90-day curing period after the 15-day thermophilic compost process has been completed. Compost shall be screened through a maximum 9.5-mm screen. The moisture content of the compost shall not exceed 35 percent. Moisture content shall be determined by California Test 226. Compost products with a higher moisture content may be used provided the weight of the compost is increased to equal the compost with a moisture content of 35 percent. Compost will be tested for maturity and stability with a solvita test kit. The compost shall measure a minimum of 6 on the maturity and stability scale.

#### **Stabilizing Emulsion**

Stabilizing emulsion shall conform to the provisions in Section 20-2.11, "Stabilizing Emulsion," of the Standard Specifications and these special provisions. Stabilizing emulsion shall be nonflammable and shall have an effective life of at least one year.

Stabilizing emulsion shall be in a dry powder form, may be reemulsifiable, and shall be a processed organic adhesive derivative of Plantago ovata used as a soil tackifier.

#### **APPLICATION**

Erosion control materials shall be applied in 3 separate applications. in the following sequence:

- A. The following mixture in the proportions indicated shall be applied with hydro-seeding equipment within 60 minutes after the seed has been added to the mixture:

| Material                          | Kilograms Per Hectare<br>(Slope Measurement) |
|-----------------------------------|--|
| Fiber                             | 320  |
| Non- Legume Seed<br>(SEED TYPE 1) | 50   |
| Compost                           | 940  |

- B Straw shall be applied at the rate of 4.0 tonnes per hectare based on slope measurements. Incorporation of straw will not be required.
- C. The following mixture in the proportions indicated shall be applied with hydro-seeding equipment:

| Material                      | Kilograms Per Hectare<br>(Slope Measurement) |
|-------------------------------|--|
| Fiber                         | 320  |
| Compost                       | 940  |
| Stabilizing Emulsion (Solids) | 150  |

D The ratio of total water to total stabilizing emulsion in the mixture shall be as recommended by the manufacturer.

Once straw work is started in an area, stabilizing emulsion applications shall be completed in that area on the same working day.

Removal of trash and debris, and mowing shall be required in erosion control (Type D) areas until acceptance of the contract. Mowing shall be performed after the weed height exceeds 300 mm. Erosion control (Type D) shall be mowed to a height of 50 mm to 150 mm.

The proportions of erosion control materials may be changed by the Engineer to meet field conditions.

### MEASUREMENT AND PAYMENT

The contract price paid per kilogram for compost (erosion control) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying compost for erosion control, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.27 FIBER ROLLS

Fiber rolls shall conform to the details shown on the plans and these special provisions.

### MATERIALS

Fiber rolls shall consist of one of the following:

- A. Fiber rolls shall be constructed with manufactured blankets consisting of one material or a combination of materials consisting of wood excelsior, rice or wheat straw, or coconut fibers. Blankets shall measure approximately 2.0 to 2.4 m wide by 20 m to 29 m in length. Wood excelsior material shall have individual fibers, 80 percent of which shall be 150 mm or longer in fiber length. Blankets shall have a photodegradable plastic netting or biodegradable jute, sisal or coir fiber netting on at least one side. The blanket shall be rolled on the blanket's width and secured with jute twine spaced 2 m apart along the roll for the full length and 150 mm from each end of the individual rolls. The finished roll diameter shall be a minimum of 200 mm and a maximum of 250 mm and shall weigh not less than 0.81 kg/m. Overlapping of more than one blanket may be required to achieve the finished roll diameter. When overlapping is required, blankets shall be longitudinally overlapped 150 mm along the length of the fabric.
- B. Fiber rolls shall be pre-manufactured rice or wheat straw, wood excelsior or coconut fiber rolls encapsulated within a photodegradable plastic or biodegradable jute, sisal or coir fiber netting. Each roll shall be a minimum of 200 mm and a maximum of 250 mm in diameter, 3 m to 6 m in length and shall weigh not less than 1.6 kg/m. The netting shall have a minimum durability of one year after installation. The netting shall be secured tightly at each end of the individual rolls.
- C. Stakes shall be fir or pine and shall be a minimum of 19 mm x 38 mm x 450 mm in length. Metal stakes may be used as an alternative. The Contractor shall submit a sample of the metal stake to the Engineer prior to installation. The tops of the metal stakes shall be bent over at a 90-degree angle. No additional compensation will be allowed for the use of a metal stake.

### INSTALLATION

Fiber rolls shall be installed approximately parallel to the slope contour. Fiber rolls shall be installed prior to the application of other erosion control materials.

Fiber rolls shall be installed by one of the following methods:

- A. Furrows shall be constructed to a depth of 50 mm to 100 mm, and at a sufficient width to hold the fiber rolls. The installed angle of the fiber roll to the slope contour shall create a 2 to 5 percent grade from the center to the edge of the slope. The bedding area for the fiber roll shall be cleared of obstructions including, but not limited to, rocks, clods and debris greater than 25 mm in diameter prior to installation. Fiber rolls shall be installed, overlapped and secured as shown on the plans.



Stakes shall be installed 600 mm apart along the total length of the rolls and 300 mm from the end of each individual roll. Stakes shall be driven flush or a maximum of 50 mm above the roll.

- B. Using rope and notched stakes to restrain the fiber roll against the slope face in conformance with these special provisions. Rope shall be sisal or manila, biodegradable, with a diameter of no less than 6.35 mm. Stakes shall be fir or pine and shall be a minimum of 19 mm x 38 mm x 450 mm in length and shall have a 12 mm x 12 mm notch cut 100 mm from the top. Stakes shall be placed on alternate sides of the fiber roll, spaced 600 mm apart as shown on the plans. The stakes shall be driven into the slope until the notch is even with the top of the fiber roll. Rope shall be knotted at each stake and laced between the stakes as shown on the plans. After installation of the rope, the stakes shall be driven into the slope such that the rope holds the fiber roll snug to the slope face. Furrows shall not be required. If metal stakes are used instead of wood stakes, the tops shall be bent over so that the rope can be laced and knotted as with the wood stakes.

## **MEASUREMENT AND PAYMENT**

Fiber rolls will be measured by the meter from end to end along the centerline of the installed rolls deducting the widths of overlaps.

The contract price paid per meter for fiber rolls shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing fiber rolls, complete in place, including stakes, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **10-1.28 WILLOW CUTTINGS (PLANT GROUP W)**

Attention is directed to "Relations with California Department of Fish & Game" of these special provisions. Trimming of existing willow trees shall be the source of the willow cuttings and shall be performed in a area designated by the Engineer.

Willow cutting work shall consist of obtaining, transporting and planting willow cuttings in conformance with the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

Willow cuttings shall be dormant and shall not be planted before September 15 and after February 1 and until the soil is moist to a minimum depth of 200 mm, unless otherwise permitted, in writing, by the Engineer.

Prior to planting, an area 600 mm in diameter shall be cleared of weed growth at each proposed plant (willow cutting) location. Pesticides shall not be used for weed control within the 600 mm diameter area.

The Contractor shall notify the Engineer, in writing, at least 10 working days prior to gathering willow cuttings. The cuttings shall be taken only from the areas shown on the plans or other adjacent areas designated by the Engineer.

Willow cuttings shall be taken at random from healthy, vigorous plants. Not more than 50 percent of the plants in a designated area shall be cut. Not more than 25 percent of each individual plant shall be cut. Cuts shall be made with sharp, clean tools.

Willow cuttings shall be reasonably straight, 600 mm to 800 mm in length, and 20 mm to 40 mm in diameter at the base of the cutting. The top of each willow cutting shall be cut square above a leaf bud, and the base of each willow cutting shall be cut below a leaf bud at an angle of approximately 45 degrees. Willow cuttings shall have leaves and branches trimmed off flush with the stem. Pruned branches and trimmings shall be spread in the designated willow cutting areas so that no areas are left unsightly.

Willow cuttings shall be planted within 48 hours after cutting and shall be kept wet until planted. Willow cuttings not planted within 48 hours after cutting, or allowed to dry out, shall not be used. Willow cuttings not used shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

A root stimulant shall be applied to the willow cuttings immediately prior to planting. The stimulant shall be applied in conformance with the printed instructions of the root stimulant manufacturer. A copy of the instructions shall be furnished to the Engineer prior to applying the stimulant.

Planting holes shall be made perpendicular to the ground line and shall be formed with a steel bar or excavated by use of an auger, post hole digger or similar tools. Plant holes shall be large enough to receive the willow cuttings in order that the willow cuttings may be planted to the proper depths without damage to the bark. Where rock or other hard material prohibits holes from being excavated as specified, new holes shall be excavated and the abandoned holes backfilled.

If the soil in and around the plant hole is not wet prior to planting, the soil shall be watered and maintained in a wet state until the willow cuttings are planted.

The base of willow cuttings shall be planted from 400 mm to 533 mm deep (approximately two thirds the willow cutting's length) and shall have from 3 to 5 bud scars exposed above the plant hole. After planting, the plant holes shall be backfilled with excavated material. The excavated material shall be distributed evenly within the hole without clods, lumps

or air pockets and compacted without damage to the willow cutting's bark. Compaction shall be adequate to prevent the willow cutting from being easily removed from the soil.

Cuttings shall be watered and maintained in a healthy condition, from the time the cuttings are planted until acceptance of the contract. Cuttings that die shall be replaced at the Contractor's expense. The method of planting replacement cuttings shall be as specified in this section for willow cuttings.

The quantity of willow cuttings will be measured as units determined from actual count in place, excluding additional willow cuttings required for replacement cuttings.

Full compensation for obtaining and transporting willow cuttings, preparing planting holes, furnishing and , applying root stimulant, and for watering and maintaining willow cuttings shall be considered as included in the contract unit price paid for plant (Group W) and no additional compensation will be allowed therefor.

#### **10-1.29 WILLOW WATTLES (PLANT GROUP Wa)**

Willow wattles work shall consist of obtaining and bundling willow cuttings, transporting and planting willow wattles in conformance with the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

Willow cuttings for willow wattles shall be dormant and shall not be planted before September 15 and after February 1 and until the soil is moist to a minimum depth of 200 mm, unless otherwise permitted, in writing, by the Engineer.

Prior to planting, an area 600 mm in width shall be cleared of weed growth at each proposed plant (willow wattle) location. Pesticides shall not be used for weed control within the 600 mm width area.

The Contractor shall notify the Engineer, in writing, at least 10 working days prior to gathering willow cuttings. The cuttings shall be taken only from the areas shown on the plans or other adjacent areas designated by the Engineer.

Willow cuttings for wattles shall be taken at random from healthy, vigorous plants. Not more than 50 percent of the plants in a designated area shall be cut. Not more than 25 percent of each individual plant shall be cut. Cuts shall be made with sharp, clean tools.

Willow cuttings for wattles shall be reasonably straight, 600 mm to 1200 mm in length, and 20 mm to 31 mm in diameter at the base of the cutting. The top of each willow cutting shall be cut square above a leaf bud, and the base of each willow cutting shall be cut below a leaf bud at an angle of approximately 45 degrees. Willow cuttings shall have leaves and branches trimmed off flush with the stem. Pruned branches and trimmings shall be spread in the designated willow cutting areas so that no areas are left unsightly.

Willow wattles shall be planted within 48 hours after cutting and shall be kept wet until planted. Willow wattles not planted within 48 hours after cutting, or allowed to dry out, shall not be used. Willow wattles not used shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Planting trenches shall be made parallel with the ground line and shall be excavated by use of a mattock or similar tools. Plant trenches shall be large enough to receive two-thirds, diameter, of the willow wattles in order that the willow wattles may be planted with the top third exposed. Where rock or other hard material prohibits trenches from being excavated as specified, new trenches shall be excavated and the abandoned trenches backfilled.

If the soil in and around the plant trench is not wet prior to planting, the soil shall be watered and maintained in a wet state until the willow wattles are planted.

After planting, the willow wattles shall be staked and the plant trenches backfilled with excavated material, as shown on the plans. The excavated material shall be distributed evenly around the wattle without clods, lumps or air pockets and compacted without damage to the willow cutting's bark. Compaction shall be adequate to prevent the willow wattle from being easily removed from the soil.

Stakes shall be fir or pine and installed as shown on plans.

Willow wattles shall be watered and maintained in a healthy condition from the time the wattles are planted until acceptance of the contract. Willow wattles that die shall be replaced at the Contractor's expense. The method of planting replacement wattles shall be as specified in this section for willow wattles.

The quantity of willow wattles cuttings will be measured by the meter from end to end along the centerline of the installed wattle.

Full compensation for obtaining and transporting willow wattles, cuttings, preparing planting trench holes, furnishing and, applying root stimulant, and for watering and maintaining willow wattles cuttings shall be considered as included in the contract unit price paid for plant (Group Wa) and no additional compensation will be allowed therefor.

#### **10-1.30 SUBGRADE ENHANCEMENT FABRIC**

Subgrade enhancement fabric shall be placed where shown on the plans and locations designated by the Engineer in accordance with these special provisions.

Subgrade enhancement fabric shall be manufactured from one or more of the following materials: polyester, nylon or polypropylene.

Subgrade enhancement fabric shall conform to the following:

|   | Woven   | Non-<br>Woven |
|---|---------|---------------|
| Weight, Kilograms per Square Meter, Min.<br>ASTM Designation: D3776                     | 0.20    | 0.20          |
| Grab Tensile Strength, Newton, Min.<br>ASTM Designation: D4632                          | 890     | 801           |
| Modulus (Tensile Strength at 10%<br>Elongation) Newton, Min.<br>ASTM Designation: D4632 | 490     | —             |
| Elongation at Break, Percent, Maximum<br>ASTM Designation: D4632                        | 35 Max. | 50 Min.       |

Subgrade enhancement fabric shall be furnished in an appropriate protective cover which shall protect it from ultraviolet radiation and from abrasion due to shipping and handling, and shall remain in said cover until installation.

Subgrade enhancement fabric shall be accompanied by a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

The subgrade to receive the fabric, immediately prior to placing, shall conform to the compaction and elevation tolerance specified in Section 25-1.03, "Subgrade," of the Standard Specifications and these special provisions and shall be free of loose or extraneous material and sharp objects that may damage the fabric during installation.

Subgrade enhancement fabric shall be handled and placed in accordance with the manufacturer's recommendation and shall be positioned longitudinally along the alignment, pulled taut to form a tight wrinkle-free mat.

Adjacent borders of the fabric shall be overlapped a minimum of 450 mm.

The amount of subgrade enhancement fabric placed shall be limited to that which can be covered with aggregate subbase material within 72 hours.

Should the fabric be damaged during placing, the damaged section shall be repaired by placing a new piece of fabric over the damaged area. Said piece of fabric shall be large enough to cover the damaged area and provide a minimum 900 mm overlap on all edges.

Damage to the fabric resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.

During spreading and compaction of the aggregate subbase material, vehicles or equipment shall not be driven directly on the fabric. A sufficient thickness of material shall be maintained between the fabric and the equipment to prevent damage to the fabric.

The quantity of subgrade enhancement fabric to be paid for will be measured by the square meter of area covered, not including additional fabric for overlap.

The contract price paid per square meter for subgrade enhancement fabric shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in placing the fabric, complete in place as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

### **10-1.31 CLASS 3 AGGREGATE BASE**

Aggregate base shall be Class 3 and shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

The restriction that the amount of reclaimed material included in Class 3 aggregate base not exceed 50 percent of the total volume of the aggregate used shall not apply. Aggregate for Class 3 aggregate base may include reclaimed glass. Aggregate base incorporating reclaimed glass shall not be placed at locations where surfacing will not be placed over the aggregate base.

Aggregate for Class 3 aggregate base shall conform to the following requirements:

Grading Requirements (Percentage Passing)

| Sieve Sizes  | 19 mm Maximum   |                     |
|--------------|-----------------|---------------------|
|              | Operating Range | Contract Compliance |
| 50-mm        |                 |                     |
| 37.5-mm      |                 |                     |
| 25-mm        | 100             | 100                 |
| 19-mm        | 90-100          | 87-100              |
| 4.75-mm      | 35-60           | 30-65               |
| 600- $\mu$ m | 10-30           | 5-35                |
| 75- $\mu$ m  | 2-11            | 0-14                |

Grading Requirements (Percentage Passing)

| Sieve Sizes  | 37.5 mm Maximum |                     |
|--------------|-----------------|---------------------|
|              | Operating Range | Contract Compliance |
| 50-mm        | 100             | 100                 |
| 37.5-mm      | 90-100          | 87-100              |
| 25-mm        | ----            | ----                |
| 19-mm        | 50-85           | 45-90               |
| 4.75-mm      | 25-45           | 20-50               |
| 600- $\mu$ m | 10-25           | 6-29                |
| 75- $\mu$ m  | 2-11            | 0-14                |

Quality Requirements

| Tests                | Operating Range | Contract Compliance |
|----------------------|-----------------|---------------------|
| Sand Equivalent      | 25 Min.         | 22 Min.             |
| Resistance (R-value) | ----            | 78                  |
| Durability Index     | ----            | 35 Min.             |

### 10-1.32 CONCRETE STRUCTURES

Portland cement concrete structures shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

All endwalls, wingwalls, and manhole junction structures are defined as "Minor Structures," in accordance with Section 51-1.02 of the Standard Specifications.

Attention is directed to manhole junction structure at Drainage System 1(e). The Contractor shall form the opening for future 1050 mm alternative pipe culvert (by others) as shown on the plans and as directed by the Engineer. Prior to backfilling, the opening for future 1050 mm alternative pipe culvert shall be covered on the exterior of the junction structure using exterior grade plywood 32 mm (1 1/4") thick, then backfilled.

Full compensation for forming the opening for future 1050 mm alternative pipe culvert (by others), and for furnishing and placing the 32 mm (1 1/4") thick plywood to seal the opening for future 1050 mm alternative pipe culvert (by others), shall be included in the contract unit price per cubic meter of minor concrete (minor structure), and no separate payment will be made therefor. No deduction in pay quantities for minor concrete (minor structure) for manholes will be made for the volume of structural concrete occupied by pipe collars or pipe openings.

Reinforcing bars for manholes shall be low-alloy steel deformed bars conforming to the requirements in ASTM Designation: A 706/A 706M or of ASTM Designation: A 615/A 615M, Grade 60.

### 10-1.33 ALTERNATIVE PIPE

1050 mm alternative pipe culverts shall conform to the provisions in Section 62, "Alternative Culverts," of the Standard Specifications and these special provisions.

#### SPIRAL RIB PIPE

Spiral rib pipe shall conform to the provisions in "Corrugated Metal Pipe" of these special provisions, except for profile and fabrication requirements.

Spiral rib pipe shall, at the option of the Contractor, consist of either (1) three rectangular ribs spaced midway between seams with ribs 19 mm wide by 19 mm high at a maximum rib pitch of 191 mm, (2) two rectangular ribs and one half-circle rib equally spaced between seams with ribs 19 mm wide by 25 mm high at a maximum rib pitch of 292 mm. The half-circle rib diameter shall be spaced midway between the rectangular ribs or (3) two rectangular ribs equally spaced between seams with

ribs 19 mm wide by 25 mm high at a maximum rib pitch of 213 mm. Rib pitch measured at right angles to the direction of the ribs may vary  $\pm 13$  mm.

Corrugated steel spiral rib pipe shall be fabricated by a continuous helical lock seam fabricated in conformance with the provisions in Section 66-3.03C(1), "Fabrication by Continuous Lock Seam," of the Standard Specifications.

Corrugated aluminum spiral rib pipe shall be fabricated by a continuous helical lock seam fabricated in conformance with the provisions in Section 66-2.03B, "Fabrication by Continuous Helical Lock Seam," of the Standard Specifications.

Coupling bands for spiral rib pipe shall conform to the provisions in Section 66-1.07, "Coupling Bands," of the Standard Specifications. A coupling band shown on the plans or approved by the Engineer in conformance with the provisions in Section 61-1.02, "Performance Requirements for Culvert and Drainage Pipe Joints," of the Standard Specifications, for use on a pipe corrugation of 68 mm x 13 mm for corrugated metal pipe may be used on spiral rib pipe having 68 mm x 13 mm rerolled annular ends. The width of band (W) for hat bands for pipe sizes larger than 1200 mm in diameter shall be 95 mm.

#### **10-1.34 MISCELLANEOUS FACILITIES**

900 mm reinforced concrete pipe riser shall conform to the provisions in Section 70, "Miscellaneous Facilities," of the Standard Specifications.

#### **10-1.35 SLOPE PROTECTION**

Rock slope protection (Facing, Method B) shall be placed or constructed in conformance with the provisions in Section 72, "Slope Protection," of the Standard Specifications and these special provisions.

Rock slope protection fabric shall be woven or nonwoven type fabric, Type A or Type B, at the option of the Contractor.

#### **10-1.36 MISCELLANEOUS IRON AND STEEL**

Miscellaneous iron and steel shall conform to the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications.

### **SECTION 10-2. HIGHWAY PLANTING**

#### **10-2.01 GENERAL**

The work performed in connection with highway planting shall conform to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications and these special provisions.

Highway planting shall be watered as specified under 20-4.06 "Watering," of the Standard Specifications.

#### **PROGRESS INSPECTIONS**

Progress inspections will be performed by the Engineer for completed highway planting work at designated stages during the life of the contract.

Progress inspections will not relieve the Contractor of responsibility for installation in conformance with the special provisions, plans and Standard Specifications. Work within an area shall not progress beyond each stage until the inspection has been completed, corrective work has been performed, and the work is approved, unless otherwise permitted by the Engineer.

The requirements for progress inspections will not preclude additional inspections of work by the Engineer at other times during the life of the contract.

The Contractor shall notify the Engineer, in writing, at least 4 working days prior to completion of the work for each stage of an area and shall allow a minimum of 3 working days for the inspection.

Progress inspections will be performed at the following stages of work:

- A. Before planting begins and after completion of the work specified for planting in Section 20-4.03, "Preparing Planting Areas," of the Standard Specifications.
- B. Before plant establishment work begins and after completion of the work specified for planting in Section 20-4.05, "Planting," of the Standard Specifications.
- C. At intervals of one month during the plant establishment period.

## **COST BREAK-DOWN**

The Contractor shall furnish the Engineer a cost break-down for the contract lump sum items of highway planting.

Cost break-downs shall be completed and furnished in the format shown in the samples of the cost break-downs included in this section. Unit descriptions of work shown in the samples are the minimum to be submitted. Additional unit descriptions of work may be designated by the Contractor. If the Contractor elects to designate additional unit descriptions of work, the quantity, value and amount for those units shall be completed in the same manner as for the unit descriptions shown in the samples. The units and quantities given in the samples are to show the manner of preparing the cost break-downs to be furnished by the Contractor.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and their values shall be included in the cost break-downs submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-downs submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for highway planting due to differences between the quantities shown in the cost break-downs furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in each cost break-down for highway planting work shall be equal to the contract lump sum price bid for the work. Overhead and profit shall be included in each individual unit listed in each cost break-down. Cost break-downs shall be submitted to the Engineer for approval within 10 working days after the contract has been approved. Cost break-downs shall be approved, in writing, by the Engineer before a partial payment for the items of highway planting and irrigation system will be made.

Approved cost break-downs will be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the items of highway planting due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation will be determined in the same manner specified for increases and decreases in the quantity of a contract item of work in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

## HIGHWAY PLANTING COST BREAK-DOWN

Contract No. 04-120624

| UNIT DESCRIPTION                | UNIT | APPROXIMATE<br>QUANTITY | VALUE | AMOUNT |
|---------------------------------|------|-------------------------|-------|--------|
| Roadside Clearing               | LS   | Lump Sum                |       |        |
| Prepare Hole                    | EA   | 35                      |       |        |
| Mulch                           | M3   | 120                     |       |        |
| Commercial Fertilizer (Tablets) | EA   | 35                      |       |        |
| Plant (Group I)                 | EA   | 35                      |       |        |
| Plant (Group M)                 | EA   | 40                      |       |        |
| Time-released Water             | EA   | 35                      |       |        |
| Foliage Protectors              | EA   | 35                      |       |        |
|                                 |      |                         |       |        |
|                                 |      |                         |       |        |
|                                 |      |                         |       |        |

**TOTAL** \_\_\_\_\_

## **10-2.02 (BLANK)**

## **10-2.03 (BLANK)**

## **10-2.04 HIGHWAY PLANTING**

The work performed in connection with highway planting shall conform to the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

### **HIGHWAY PLANTING MATERIALS**

#### **Mulch**

Mulch shall be wood chips.

#### **Fiber Rolls**

Fiber rolls for plant basins (Type II) on slope, as shown on the plans, shall conform to the provisions under "Fiber Rolls," of these special provisions.

#### **Time-Released Water**

Time-released water shall be bound in the form of a cellulose jell consisting of 98% water, 2% cellulose gum and 0.15% aluminum sulfate,. The time-released water shall remain in a jelled state until coming into contact with bacteria in the soil. Arrangements have been made to insure that the successful bidder can obtain the specified product from:

Dri Water Inc.  
715 South Point Boulevard, Suite "P"  
Petaluma, CA 95954  
(707) 528-9283

Time-released water is \$1.25 per 0.94 liters (1 quart) containers plus 7.5% sales tax F.O.B. Petaluma, California. Prices are guaranteed by Dri Water Inc. for one year from the date of the quote or January 2002.

Full compensation for time released water shall be considered as included in the contract lump sum price paid for highway planting and no separate payment will be made.

#### **Commercial Fertilizer**

Commercial fertilizer (tablet) shall be slow release and shall be in tablet form. Each tablet, as shown in the Plant List of the plans, shall have a mass of  $21 \text{ g} \pm 1 \text{ g}$ , and shall have the following guaranteed chemical analysis:

| Ingredient           | Percentage |
|----------------------|------------|
| Nitrogen             | 20         |
| Phosphoric Acid      | 10         |
| Water Soluble Potash | 5          |

At the option of the Contractor, two 10.5-g tablets may be used in place of each 21-g tablet designated on the plans or specified in these special provisions. Regardless of the tablet size used, each tablet shall be the slow release type and shall have the same guaranteed chemical analysis as specified for the 21-g tablets. Each 10.5-g tablet shall have a mass of  $10.5 \text{ g} \pm 0.5\text{-g}$ .

### **ROADSIDE CLEARING**

Prior to preparing planting and mulch areas, trash and debris shall be removed from these areas and a distance of 3 m beyond the edges of those areas.

In addition to removing trash and debris, the project area shall be cleared as specified herein:

Weeds shall be killed and removed within proposed mulch areas and within the area extending 3 m beyond the outer limits of the proposed mulch areas to the adjacent edges of existing planting.



- A. Weeds shall be killed and removed within planting areas where plants are to be planted in groups or rows 4.6 m or less apart and from within an area extending 2 m beyond the outer limits of the groups or rows of plants.
- B. Weeds shall be killed and removed within an area 0.6-m in diameter centered at each liner or pot plant location where the plants are planted more than 3 m apart. At locations where liner or pot plants are to be planted less than 3 m apart, weeds shall be killed and removed within the entire area.

After the initial roadside clearing is complete, additional roadside clearing work shall be performed as necessary to maintain the areas, as specified above, in a neat appearance until the start of the plant establishment period. This work shall include the following:

- A. Trash and debris shall be removed.
- B. Rodents shall be controlled.
- C. Weed growth shall be killed before the weeds reach the seed stage of growth or exceed 300 mm in length, except for weeds in erosion control (Type D) and erosion control blanket areas to be mowed.
- D. Weeds in plant basins, including basin walls, shall be removed by hand pulling, after the plants have been planted.

### **Weed Control**

Weed control shall also conform to the following:

- A. Removed weeds shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Roadside clearing work shall not include work required to be performed as clearing and grubbing as specified in Section 16, "Clearing and Grubbing," of the Standard Specifications.

### **PESTICIDES**

Pesticides used to control weeds shall conform to the provisions in Section 20-4.026, "Pesticides," of the Standard Specifications. Except as otherwise provided in these special provisions, pesticide use shall be limited to the following materials:

Glyphosate

Glyphosate shall be used on Eucalyptus tree stumps.

If the Contractor elects to request the use of other pesticides on this project, the request shall be submitted, in writing, to the Engineer not less than 15 days prior to the intended use of the other pesticides. Except for the pesticides listed in these special provisions, no pesticides shall be used or applied without prior written approval of the Engineer.

### **PREPARING PLANTING AREAS**

Plants adjacent to drainage ditches shall be located so that, after construction of the basins, no portion of the basin walls shall be less than 1 m from the top edge of graded ditches.

### **PREPARE HOLES**

Holes for plants shall be excavated to the minimum dimensions shown on the plans.

Backfill material for plant holes shall be native soil. Backfill material shall be uniformly distributed throughout the entire depth of the plant hole without clods and lumps.

### **PLANTING**

Commercial fertilizer shall be applied or placed at the time of planting and at the rates shown on the plans.

Mulch placed in areas outside of plant basins shall be spread to a depth of not less than 100 mm.

Mulch shall be spread from the outside of the proposed plant basin to 1.5 m beyond the outside edge of the proposed basins and to the adjacent edges of graded ditches.

Mulch shall not be placed within earthen drainage ditches.

Time-released water units shall be placed within the plant basin as shown on the plans.

## **LINER PLANTS**

Liner plants shall be furnished in containers with a minimum size of 38 mm in diameter by 140 mm deep. Liner plant containers made of biodegradable material shall not be used. All liner plants shall be removed from their containers at the time of planting.

Liner plants shall not be planted before September 15 nor after November 15 and not until the soil is moist to a minimum depth of 200 mm, unless otherwise approved, in writing, by the Engineer.

Planting holes for liner plants shall be large enough to accommodate the total length and width of the root ball.

## **POT PLANTS (GROUP I)**

Pot plants shall be furnished in containers with a minimum size of 100 mm by 100 mm by 350 mm deep. Liner plant containers made of biodegradable material shall not be used. All liner plants shall be removed from their containers at the time of planting.

Pot plants shall not be planted before September 15 nor after November 15 and not until the soil is moist to a minimum depth of 200 mm, unless otherwise approved, in writing, by the Engineer.

Planting holes for pot plants shall be large enough to accommodate the total length and width of the root ball, fertilizer tablet, and time-released water units.

One 21-g size, or two 10.5-g size, commercial fertilizer tablets, conforming to the provisions in section "Commercial Fertilizer" of these special provisions, shall be placed at the bottom of each planting hole and covered with a minimum of 50 mm of soil before planting the pot plants.

## **FOLIAGE PROTECTOR**

Foliage protectors shall be installed in conformance with the details shown on the plans, the provisions in Section 20-2.13A, "Foliage Protector," and Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

Each foliage protector shall be held in place with two 13-mm steel reinforcing bar support stakes, a minimum of 1.5 m long. Support stakes shall be installed vertically a minimum of 0.3-m deep on the opposite sides of the plant in a direction transverse to the prevailing winds.

## **PLANT ESTABLISHMENT WORK**

The Contractor shall submit a watering schedule program to the Engineer for approval not less than 15 working days prior to the beginning of the plant establishment period. If the Engineer determines the submitted watering schedule is unacceptable, the Contractor shall submit a revised watering schedule to the Engineer for approval within 5 working days after receiving notice that previously submitted schedule is unacceptable.

The Contractor shall submit a list of the weekly water application in liters to the Engineer on a monthly basis.

The plant establishment period shall be Type 2 and shall be not less than 130 working days.

If willow cutting and willow wattle work cannot be performed within the time limits specified under "Willow Cutting and Willow Wattles" of these special provisions and the Engineer determines that the work except willow cutting and willow wattles and plant establishment work has been completed, the Engineer will notify the Contractor in writing of the start of the plant establishment period.

Willow cutting and willow wattles not performed prior to the start of the plant establishment period shall be performed during the plant establishment period. The work involved in collecting, preparing and installing willow cutting and willow wattles shall be in conformance with the provisions in "Willow Cutting and Willow Wattles" of these special provisions.

Attention is directed to "Relief From Maintenance and Responsibility" in these special provisions regarding relief from maintenance and protection.

Weeds within plant basins, including basin walls, shall be controlled by hand pulling.

Weeds within mulched and outside of plant basins shall be controlled by mowing. Mowing shall be performed after weed height exceeds 300 mm. Weeds shall be mowed to a height of 50 mm to 150 mm. Trash and debris removal shall be performed in Willow Cutting and Willow Wattle areas.

At the option of the Contractor, plants of a larger container size than those originally specified may be used for replacement plants during the first 90 working days of the plant establishment period. The use of plants of a larger container size than those originally specified for replacement plants shall be at the Contractor's expense.

After 90 working days of the plant establishment period have been completed, replacement of plants shall be the same size as originally specified.

During the plant establishment period, if plants become restricted by foliage protectors, the tops of foliage protectors shall be removed. Foliage protectors shall be completely removed, including the support stakes, within 15 working days prior to completion of the plant establishment period.

The final inspection shall be performed in conformance with the provisions in Section 5-1.13, "Final Inspection," of the Standard Specifications and shall be completed a minimum of 20 working days before the estimated completion of the contract.